

AD/A-002 853

**A STRUCTURAL WEIGHT ESTIMATION PROGRAM
(SWEEP) FOR AIRCRAFT. VOLUME II-
PROGRAM INTEGRATION AND DATA MANAGE-
MENT MODULE. PART 2: DATA MANAGEMENT
MODULE**

G. Hayase, et al

Rockwell International Corporation

Prepared for:

Aeronautical Systems Division

June 1974

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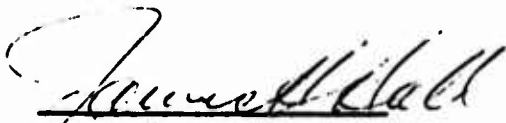
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JAMES H. HALL, Colonel, USAF
Deputy for Development Planning

AD/A002853

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Three computer programs were written with the objective of predicting the structural weight of aircraft through analytical methods. The first program, the structural weight estimation program (SWEEP), is a completely integrated program including routines for airloads, loads spectra, skin tem- peratures, material properties, flutter stiffness requirements, fatigue life, structural sizing, and for weight estimation of each of the major aircraft structural components. The program produces first-order weight estimates		

and indicates trends when parameters are varied. Fighters, bombers, and cargo aircraft can be analyzed by the program. The program operates within 100,000 octal units on the Control Data Corporation 6600 computer. Two stand-alone programs operating within 100,000 octal units were also developed to provide optional data sources for SWEEP. These include (1) the flexible airloads program to assess the effects of flexibility on lifting surface airloads, and (2) the flutter optimization program to optimize the stiffness distribution required for lifting surface flutter prevention.

The final report is composed of 11 volumes. This volume (volume II) contains the methodology, program description, and user's information for the SWEEP control program, input data processing module, final output module, and the data management module.

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APPENDIX A

DATA MANAGEMENT MODULE FLOW CHARTS

AND FORTRAN LISTS

MODULE FLOW CHARTS AND FORTRAN LISTS

FLOW CHART USAGE

The automatically generated computer program flow charts (AUTOFLOW) presented in this document include a table of contents, flow charts, and FORTRAN lists of all routines in the module. The 80-column card lists are sequenced and grouped by routine.

Because the AUTOFLOW system used is IBM-oriented, the functions of the BUFFERIN and BUFFEROUT statements are not recognized, but these statements appear in proper order in note boxes. Also, the PROGRAM name does not appear on the main program, and library routines READMS and WRITMS are listed as undefined external references.

CROSS-REFERENCE LIST

The AUTOFLOW table of contents which precedes the flow charts and FORTRAN lists serves to cross reference the latter two. This table lists the following from left to right:

- The card identification from columns 73 through 80 of this card, or card sequence number. When sequence number is used in place of card identification, it is enclosed in parentheses.
- The page and box number where this card is displayed in a flow chart.
- The FORTRAN statement number from columns 1 through 5 of this card.
- The card identification(s) or sequence number(s) of the card(s) referring to this card (repeated as required).
- The pages and box numbers where the cards referring to this card are displayed in a flow chart (repeated as required).

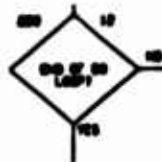
FLOW CHARTS

The flow charts produced by AUTOFLOW use USASI conventional symbols. Since the flow charts are mechanically drawn from the program source deck, there are no omissions or vague generalizations about the processing within the boxes.

Every box on each page is uniquely numbered and may be referred to from elsewhere in the program. The source of a reference to a box will be indicated by showing the page and box number. If the number is followed by an asterisk, there are multiple references to this point, and the others may be found by using the cross-reference list.



The most-often-used symbol is the decision box. Like all boxes, its box number is above and to the right of the box. Its FORTRAN statement number is above and to the left of the box. The decision choices for the paths are printed.



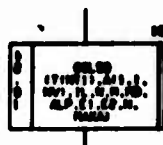
The unconditional transfer connector has its page number destination printed above or to the left of the box number destination within the connector. If there is a FORTRAN statement number at the destination, it is printed below the connector.



The exit box example shows a connector from page 9, box 15.



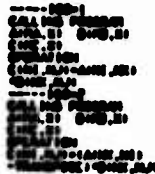
The subroutine call box includes the calling sequence. The page and box numbers of the flow chart of the called subroutine are shown on the left-hand side of the box. The page number is above the box number.



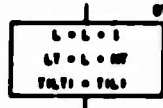
The note box encloses comments of a functional nature,



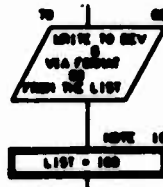
as differentiated from the 21 column comments, which are left justified without a box, that show the comment cards included in the FORTRAN deck.



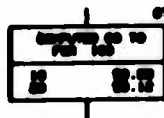
The process box is used to enclose FORTRAN arithmetic statements.



Input and output are shown as communicating with a device. The list used follows, if appropriate:



The computed ~~GO TO~~ becomes a branch table showing the page and box number of each of the ordered branches.



The column connectors and initial connectors are the only boxes without external box numbers. The function of the initial connector is always clear,

but the label given is the symbol in the next FORTRAN card, which is often blank.



The column connector identifies the page and box number to which it connects.



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FOR

AUTOFLOW CHART SET

PORTMAN HUBBLE DATA MANAGEMENT HUBBLE

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - PROCEDURES

(000030)	0.00 700		
(000035)	0.00	(000035)	0.03
(000036)	0.14 30	(000036)	0.13
(000037)	0.10 30	(000037)	0.13
(000070)	0.21 0000		
(000070)	0.23 0000	(000070)	0.20
(000130)	0.04 0001		
(000147)	0.00	(000151)	0.12
(000151)	0.12 04	(000147)	0.00
(000153)	0.14	(000157)	0.10
(000157)	0.10 00	(000154)	0.10
(000158)	0.20 0002	(000130)	0.03
(000160)	0.04 0003		
(000173)	0.00 0004	(000160)	0.23
(000191)	0.20 70	(000160)	0.20
(000195)	0.20 00	(000160)	0.20

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE ANDATA

(000204)	0.01 ANDATA	(000200)	0.20-X
(000205)	0.02	(000205)	0.03
(000206)	0.03 101		
(000209)	0.07	(000203)	0.12
(000253)	0.12 150		
(000257)	0.22 200	(000205)	0.21
(000258)	0.23	(000200)	0.24
(000259)	0.24 210		
(000257)	0.20	(000200)	0.20
(000258)	0.20 200		
(000300)	0.31	(000303)	7.01
(000303)	7.01 270		
(000305)	7.03 240		
(000306)	7.04	(000300)	7.05
(000308)	7.05 250		
(000312)	7.00	(000315)	7.10
(000315)	7.10 260		
(000317)	7.12 260	(000305)	0.21
(000347)	7.23	(000300)	0.01
(000350)	0.01 310		
(000350)	0.13 0001		
(000403)	0.10 0002	(000300)	0.12

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE ANDATA

(000414)	11.01 ANDATA	(000322)	0.00-X
(000420)	11.00 10	(000470)	11.12
(000422)	11.10 30	(000420)	11.10
(000470)	11.13 30	(000420)	11.00
(000480)	11.10 40	(000420)	11.00
(000480)	11.10 50	(000420)	11.00
(000480)	11.01 000		

CHART TITLE - NON-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE AND/OR

(000010)	14.01	AND/OR	(000024)	0.03-X
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(000024)	14.10		(000030)	14.01
(000030)	14.01	40		
(000034)	14.03	00		
(000038)	14.04		(000041)	14.05
(000041)	14.05	00		
(000044)	14.07	00	(000043)	14.02
(000046)	14.08		(000047)	14.33
(000047)	14.33	00		
(000050)	14.34	100	(000042)	14.05
(000054)	15.01	102	(000052)	14.34
(000055)	15.02	104		
(000058)	15.03		(000070)	15.05
(000070)	15.05	110		
(000070)	15.05	120	(000064)	15.01
(000070)	15.07	122	(000070)	15.05
(000080)	15.09	124	(000070)	15.05
(000080)	15.14	130	(000084)	15.08
(000080)	15.15		(000714)	15.04
(000714)	15.04	140		
(000710)	15.05	150	(000052)	14.34
(000710)	15.07	160	(000073)	15.05
(000710)	15.07		(000710)	15.05
(000700)	15.10		(000707)	15.13
(000707)	15.12	170		
(000720)	15.15		(000720)	15.10
(000720)	15.17	180		
(000720)	15.20		(000743)	15.23
(000743)	15.22	190		
(000740)	15.25		(000740)	15.27
(000740)	15.25	200		
(000700)	15.20	2001		
(000700)	15.22	2002	(000700)	15.20

CHART TITLE - NEW-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE AND/OR

(000770)	15.01	AND/OR	(000740)	0.04-X
(000800)	15.02		(000802)	15.05
(000802)	15.03	100		
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(000840)	15.10	110		

CHART TITLE - NEW-PROCEDURAL STATEMENTS

CHART TITLE - INTRODUCTORY COMMENTS

CHART TITLE - SUBROUTINE AND/OR

(000804)	22.01	CHART	(000870)	2.27-X
(000870)	22.02	101		
(000880)	22.03		(000881)	22.05
(000881)	22.03	103		
(000880)	22.07	110	(000870)	22.01
(000887)	22.10		(000880)	22.11
(000880)	22.11	115		
(000881)	22.13	117		
(000880)	22.16		(000880)	22.17
(000880)	22.17	120		
(000884)	22.21	121		
(000880)	22.22	122		
(000887)	22.01	123	(000880)	22.05
(000881)	22.05	125	(000880)	22.21
(000880)	22.05		(000880)	22.25
(000881)	22.05		(000881)	22.27

(000013)	23.07	125		
(000015)	23.08	127	(000020)	23.12
(000016)	23.09	128		
(000020)	23.12		(000021)	23.13
(000021)	23.13	129		
(000023)	23.14	130	(000015)	23.08
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 REFERENCES (GMS NUMBER NO. AND PAGE/NO.)

PAGE 17

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GMS TITLE - INTRODUCTORY COMMENTS

GMS TITLE - SIGNATURE NAMES

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TABLE OF CONTENTS AND REFERENCES			AUTOFLEX CHART SET - DEEP		PAGE 10	
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CHART TITLE - SUBROUTINE MODEL

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01/08/54

AUTOFLEX CHART SET - 800P DATA MONITORING MODULE

PAGE 01

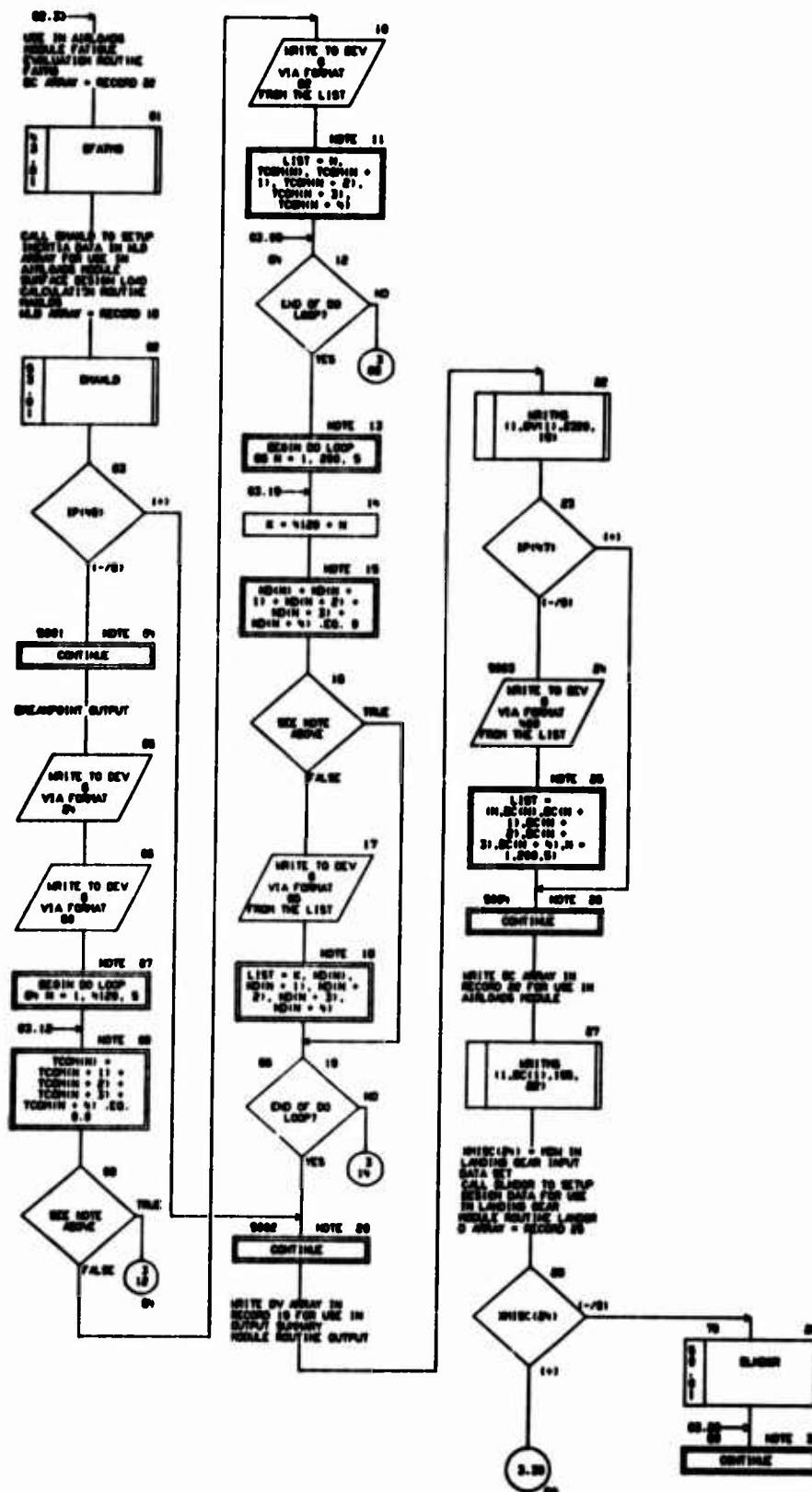
COURT TITLE - INTRODUCTORY COMMENTS

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MAIN CENTRAL DATA MANAGEMENT, SEASIDE DIST. AND INERTIA
WRITTEN 25 MAY 1972

CHART TITLE - FUNDING

IN/OUT

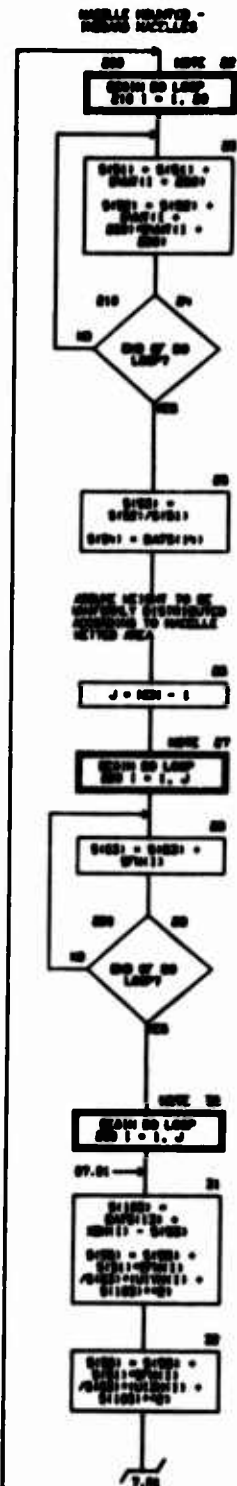
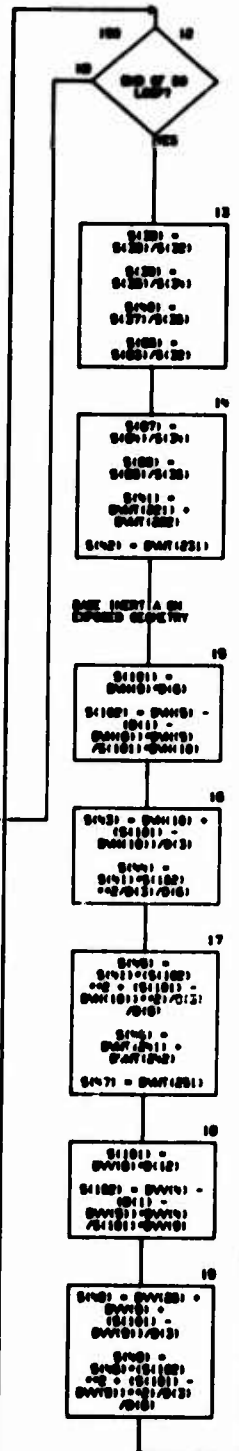
APPROXIMATE SET - DEEP

DATA NUMBER FILE

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DATA FILE - INSTRUCTORY CONTENTS

.....
SUBROUTINE DATA
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[illegible]

SHORT TITLE - BUREAU OF ARMY

CHART TITLE - SUBROUTINE A8DATA

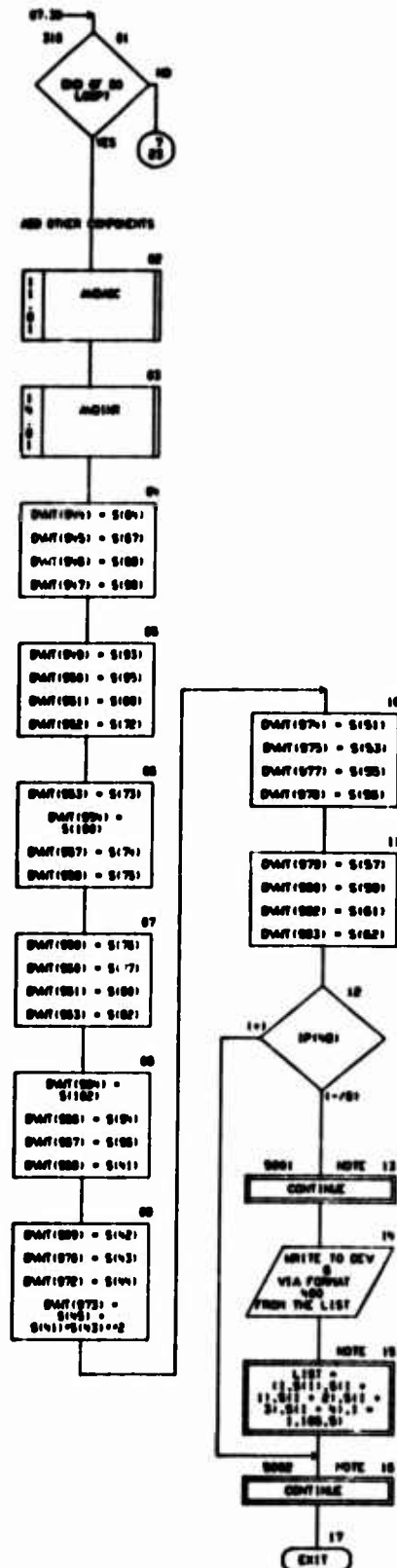


CHART TITLE - NON-PROCEDURAL STATEMENTS

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COMMON /PRINT/ IP(60)
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DIMENSION GDN(50),GDN(40),GDV(40)
DIMENSION DATS(40)
DIMENSION DWH(30),DWH(30),DWB(440),DWH(50),DWT(1000)
DIMENSION ZO(20),HBAR(20),UI(120),UI(220)
DIMENSION SFH(10),UIWH(10),UIZH(10),HBN(10)
DIMENSION MFS(20)
DIMENSION MFC(120),MFC(20),MFC(320)
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  (S(1),TCOM(3701)),(ND(1),TCOM(421))
EQUIVALENCE (GDN(1),GD(251)),(GDN(1),GD(301)),(GDV(1),GD(341))
EQUIVALENCE (DATS(1),GD(401))
EQUIVALENCE (DWH(1),DWH(371)),(DWH(1),DWH(401)),(DWB(1),DWH(431)),
  (DWH(1),DWH(871)),(DWT(1),DWH(121))
EQUIVALENCE (ZO(1),DWB(1)),(HBN(1),DWB(141)),
  (UI(1),DWB(401)),(UI(21),DWB(421))
EQUIVALENCE (SFH(1),DWH(71)),(UIWH(1),DWH(131)),
  (UIZH(1),DWH(141)),(HBN(1),DWH(111))
EQUIVALENCE (MFS(1),DWT(341))
EQUIVALENCE (MFC(1),DWT(701)),(MFC(21),DWT(801)),
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  (110, SF(0 4))

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01/02/74

AUTOFLEX CHART SC1 - BEEP DATA MANAGEMENT MODULE

PAGE 10

COURT TITLE - INTRODUCTORY COMMENTS

=====

SUBROUTINE M040C

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QUEST TITLE • SUBMITTING NAME



CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCDH(200)
DIMENSION S(700),GD(700),DV(220),S(400),AD(200)
DIMENSION GDH(50),GDH(40),GDH(40)
DIMENSION SATS(40)
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  (S(1),TCDH(50)), (D(1),TCDH(42))
DOJWILDCX (GDH(1),GD(25)), (GDH(1),GD(30)), (GDV(1),GD(30))
DOJWILDCX (SATS(1),GD(40))
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  (XAV,S(113)), (XAV,S(114))
DOJWILDCX (YAV,S(115)), (YAV,S(116)),
  (YAV,S(117)), (YAV,S(118))
DOJWILDCX (ZAV,S(119)), (ZAV,S(120)), (ZAV,S(121)),
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DOJWILDCX (X,S(124)), (Z,S(125)), (X,S(126))
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AUTOFLEX COURT SET - SETP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE MODIR

599

600

CHART TITLE - SUBROUTINE A010R

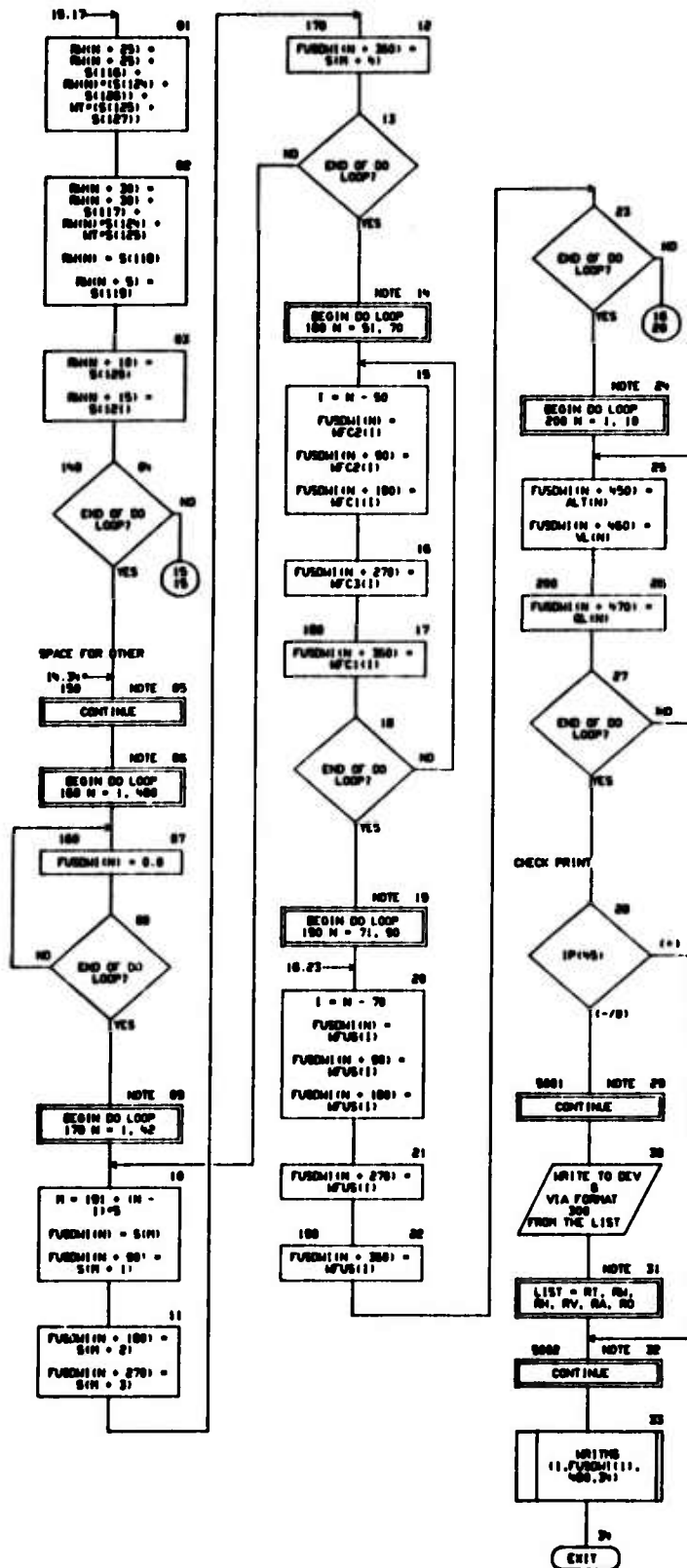


CHART TITLE - NON-PROCEDURAL STATEMENTS

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      DIMENSION SD(120)
      DIMENSION SDH(50),SDH(40),SDV(40)
      DIMENSION DATS(40)
      DIMENSION DWAT(1000)
      DIMENSION AL(10),VL(10),EL(10)
      DIMENSION MFUS(20),MFC(120),MFC2(20),MFC3(20)
      DIMENSION RT(20),RH(20),RH(20),RV(20),RA(20),RD(20)
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      EQUIVALENCE (SDH(1),SD(20)),(SDH(1),SD(20)),(SDV(1),SD(24))
      EQUIVALENCE (DATS(1),SD(40))
      EQUIVALENCE (DWAT(1),SV(112))
      EQUIVALENCE (AL(1),SV(1)),(VL(1),SV(17)),(EL(1),SV(61))
      EQUIVALENCE (MFUS(1),DWAT(24)),(MFC(1),DWAT(70))
        , (MFC2(1),DWAT(80)),(MFC3(1),DWAT(82))
      EQUIVALENCE (RT(1),S(10)), (RH(1),S(20)),(RH(1),S(20)),
        (RV(1),S(20)), (RA(1),S(33)), (RD(1),S(20))
      EQUIVALENCE (MF,S(110)),(HCO,S(111)),(YCO,S(112)),(YCO,S(113))
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        /BHRV, 2E10.6 / 61 3X,2E10.6/ /BHRB, 2E10.6 /613X,2E10.6 /)
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01/08/74

AUTOFLEX CHART SET - SHEEP DATA MANAGEMENT MODULE

PAGE 10

CHART TITLE - INTRODUCTORY COMMENTS

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SUBROUTINE AREAS
.....

CHART TITLE - SUBROUTINE A8000

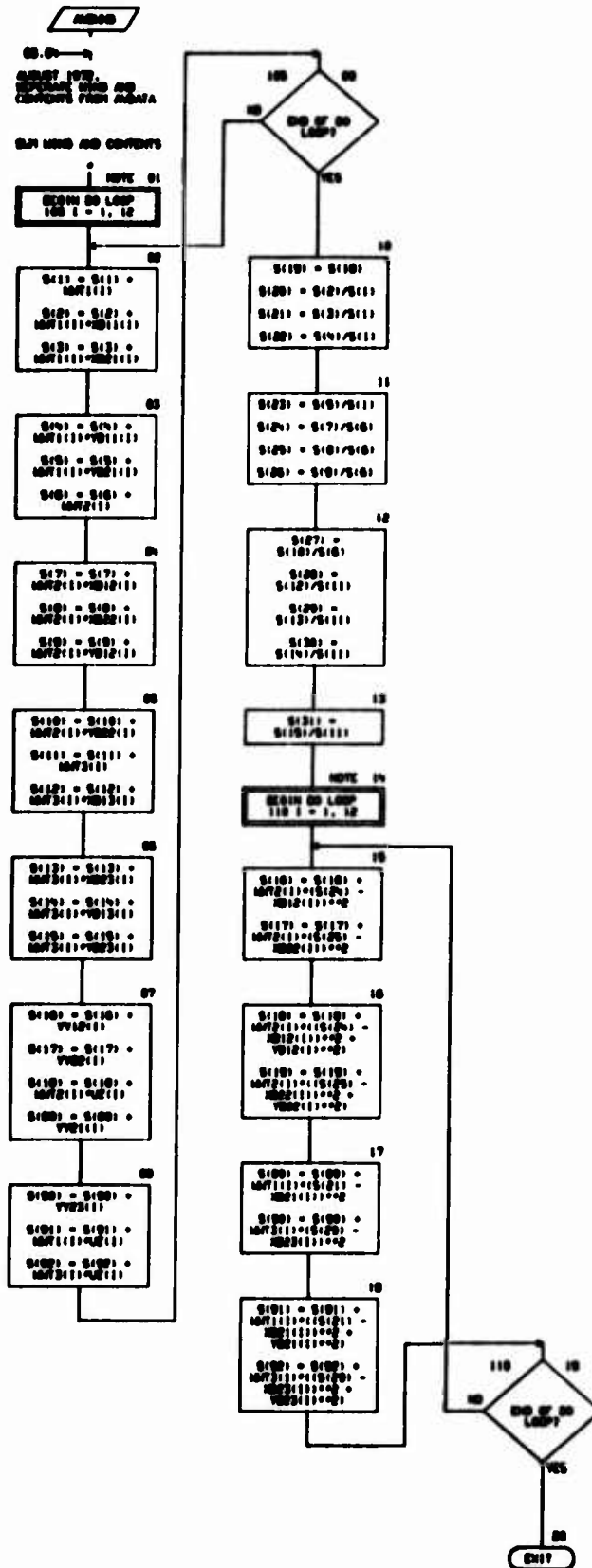


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCOM(4320)
DIMENSION B(700), BD(700), BV(2320), S(400), ND(200)
DIMENSION DMAT(1000)
DIMENSION      UZ(12), MAT(112), MAT2(12), MAT3(12),
      MB(112), MB2(12), VB(112), VB2(12), MB2(12), MB22(12),
      VB2(12), VB22(12), MB3(12), MB23(12), VB3(12), VB23(12),
      VV2(12), VVB2(12), VV22(12), VV23(12)
EQUIVALENCE (B(1),TCOM(1)), (BD(1),TCOM(701)), (BV(1),TCOM(1401)),
      (S(1),TCOM(371)), (ND(1),TCOM(412))
EQUIVALENCE (DMAT(1),BV(112))
EQUIVALENCE      (UZ(1),DMAT(401)),
      (MAT(1),DMAT(407)), (MAT2(1),DMAT(521)), (MAT3(1),DMAT(541)),
      (MB(1),DMAT(560)), (MB2(1),DMAT(581)), (VB(1),DMAT(593)),
      (VB2(1),DMAT(605)), (MB2(1),DMAT(617)), (MB22(1),DMAT(629)),
      (VB2(1),DMAT(641)), (VB22(1),DMAT(653)), (MB3(1),DMAT(665)),
      (MB23(1),DMAT(677)), (VB3(1),DMAT(689)), (VB23(1),DMAT(701)),
      (VV2(1),DMAT(713)), (VV22(1),DMAT(725)), (VV23(1),DMAT(737)),
      (VV23(1),DMAT(749))

```



```

graph TD
    Start([START]) --> 01
    01{PART(100)} --> 101
    101[5(1) = PART(100)  
5(2) = PART(100)] --> 03
    03[OTHER] --> 04
    04[NOTE  
BEGIN DO LOOP  
103 I = J, K] --> 05
    05[PART(1) = 3501  
PART(2) = 3501  
5(1) = 201] --> 06
    06{END OF DO LOOP?} --> 07
    07[YES] --> 110
    07[NO] --> 05
    110[5(1) = PART(100)  
5(2) = PART(100)] --> 08
    08[OTHER] --> 09
    09[NOTE  
BEGIN DO LOOP  
110 I = J, K] --> 10
    10[PART(1) = 3501  
PART(2) = 3501  
5(1) = 201] --> 11
    11{END OF DO LOOP?} --> 110
    11[NO] --> 10
    110 --> 115
    115{END OF DO LOOP?} --> 116
    115[YES] --> 117
    117[5(1) = PART(100)  
5(2) = PART(100)] --> 118
    118[OTHER] --> 119
    119[NOTE  
BEGIN DO LOOP  
120 I = J, K] --> 120
    120[PART(1) = 3501  
PART(2) = 3501  
5(1) = 201] --> 121
    121{END OF DO LOOP?} --> 122
    121[YES] --> 123
    121[NO] --> 120
    123[DISTRIBUTE SURFACE  
CONTROLS USING A  
TRAPEZOIDAL  
DISTRIBUTION] --> 124
    124[5(1) = PART(100)  
5(2) = PART(100)  
5(3) = PART(100)] --> 125
    125[5(1) = PART(100)  
5(2) = PART(100)  
5(3) = PART(100)] --> 126
    126[5(1) = 15(1) -  
5(2)/5(3)] --> 127
    127 --> 128
    128{15(1) = 5(1)  
5(2) - 5(1)} --> 129
    128[YES] --> 130
    128[NO] --> 127
    130{15(1) = 5(1)  
5(2) - 5(1)} --> 131
    130[YES] --> 132
    130[NO] --> 127
    132[STOP] --> 133
    133([STOP])
  
```

Flowchart of the program, showing the sequence of operations from start to end.

START

01

PART(100)

101

5(1) = PART(100)
5(2) = PART(100)

03

OTHER

NOTE

BEGIN DO LOOP
103 I = J, K

05

PART(1) = 3501
PART(2) = 3501
5(1) = 201

06

END OF DO LOOP?

YES

110

5(1) = PART(100)
5(2) = PART(100)

08

OTHER

NOTE

BEGIN DO LOOP
110 I = J, K

10

PART(1) = 3501
PART(2) = 3501
5(1) = 201

11

END OF DO LOOP?

YES

116

END OF DO LOOP?

NO

117

5(1) = PART(100)
5(2) = PART(100)

118

OTHER

NOTE

BEGIN DO LOOP
120 I = J, K

120

PART(1) = 3501
PART(2) = 3501
5(1) = 201

121

END OF DO LOOP?

YES

123

DISTRIBUTE SURFACE
CONTROLS USING A
TRAPEZOIDAL
DISTRIBUTION

124

5(1) = PART(100)
5(2) = PART(100)
5(3) = PART(100)

125

5(1) = PART(100)
5(2) = PART(100)
5(3) = PART(100)

126

5(1) = 15(1) -
5(2)/5(3)

127

15(1) = 5(1)
5(2) - 5(1)

YES

130

15(1) = 5(1)
5(2) - 5(1)

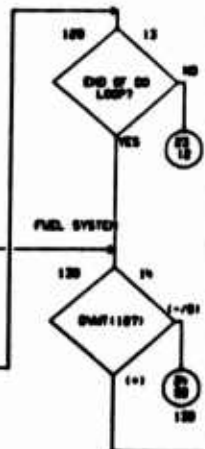
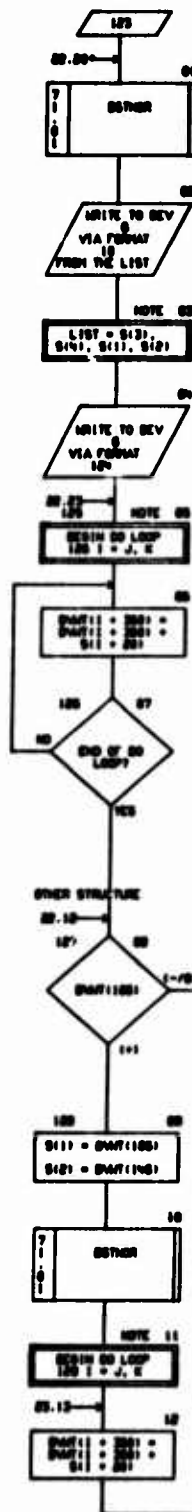
YES

132

STOP

133

STOP



```

graph TD
    10[10] --> 11[S1 = 0  
S2 = 0]
    11 --> 12[NOTE 17  
BEGIN DO LOOP  
IF 1 = 1, 5, 8]
    12 --> 13{13  
S1 = S1 + 1  
EG. S1 = 1}
    13 -- TRUE --> 14{14  
S2 = S2 + S1  
EG. S2 = 1}
    13 -- FALSE --> 14
    14 -- TRUE --> 15[S3 = S1^2 + S2]
    14 -- FALSE --> 13
    15 --> 16{16  
END OF DO LOOP?}
    16 -- YES --> 17[S4 = S3 - S2]
    16 -- NO --> 13
    17 --> 18{18  
S4 = S3}
    18 -- YES --> 19[19  
PRINT S4]
    18 -- NO --> 20[S4 = S4 + 1]
    20 --> 13
    19 --> 21[21  
STOP]
  
```

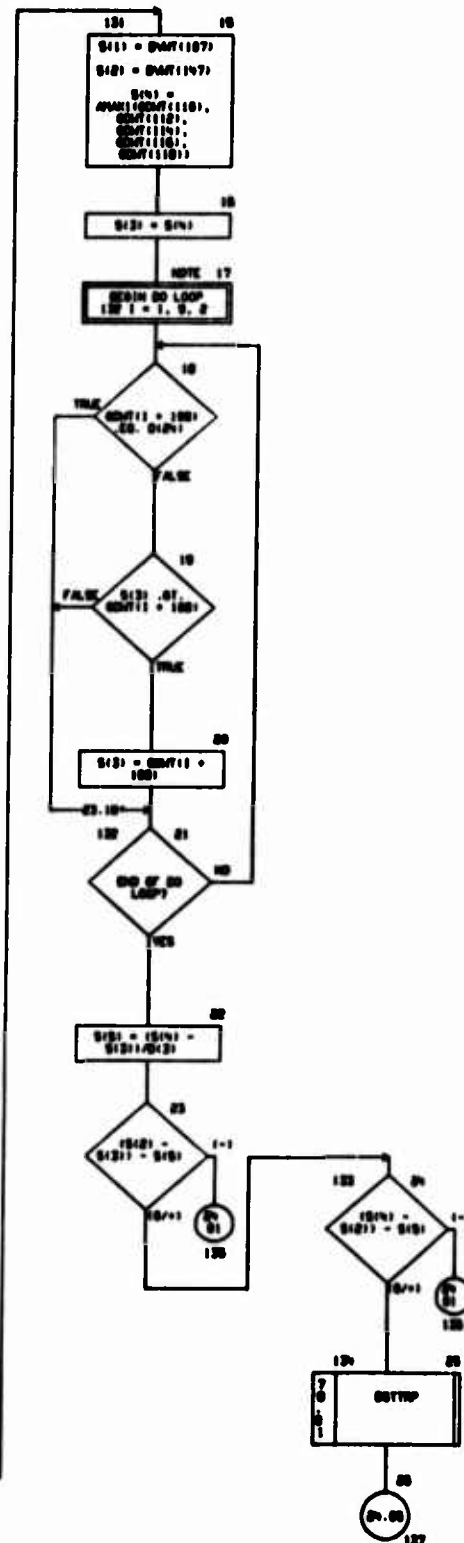


CHART TITLE - SUBROUTINE CONDOS?

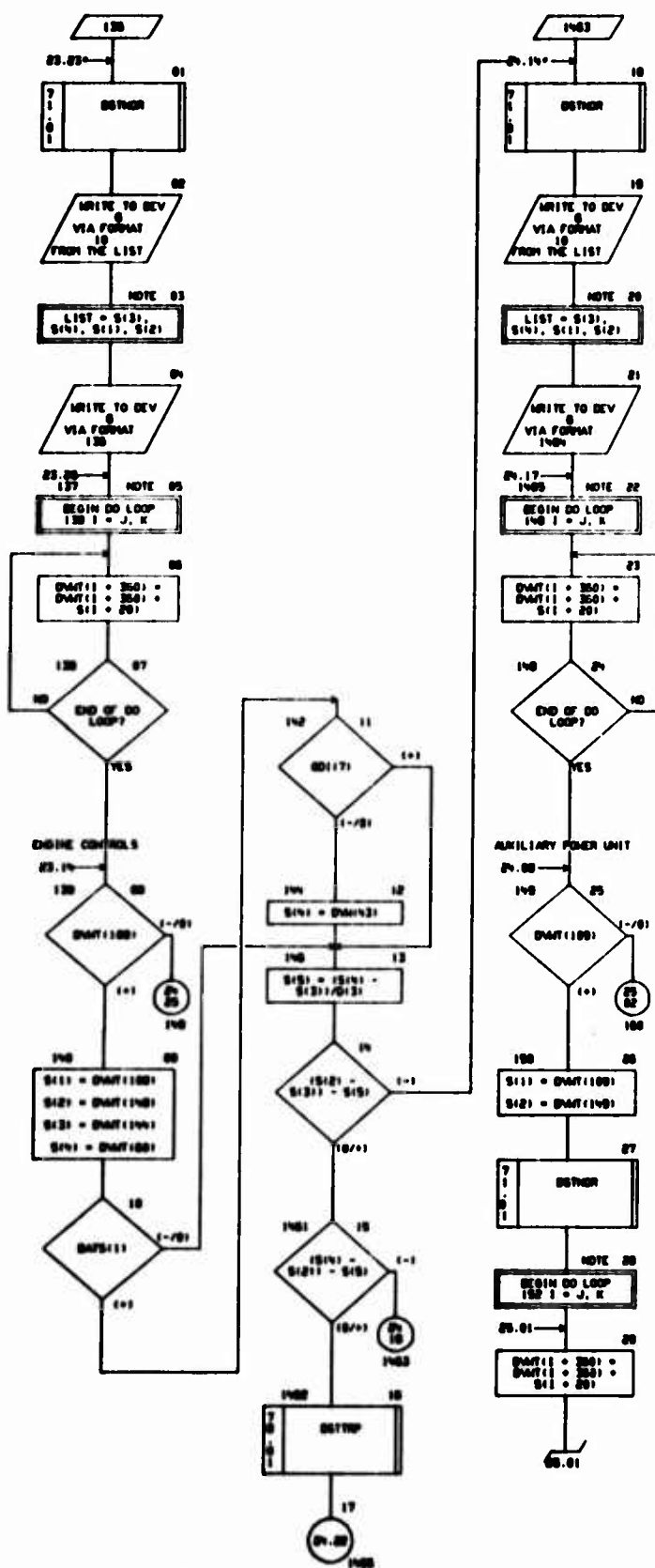


CHART TITLE - SUBROUTINE CHART

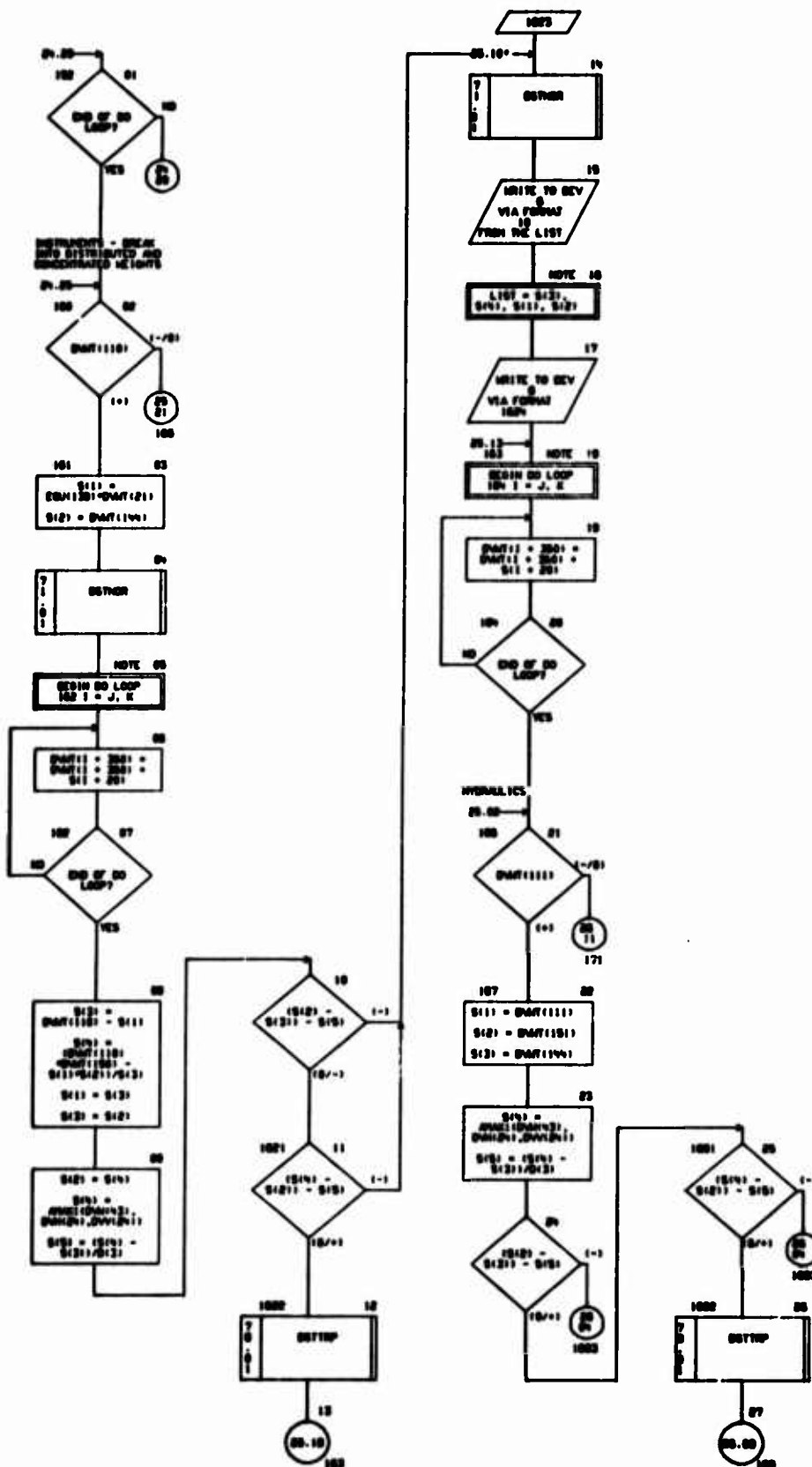


CHART TITLE - SUBROUTINE CONDST

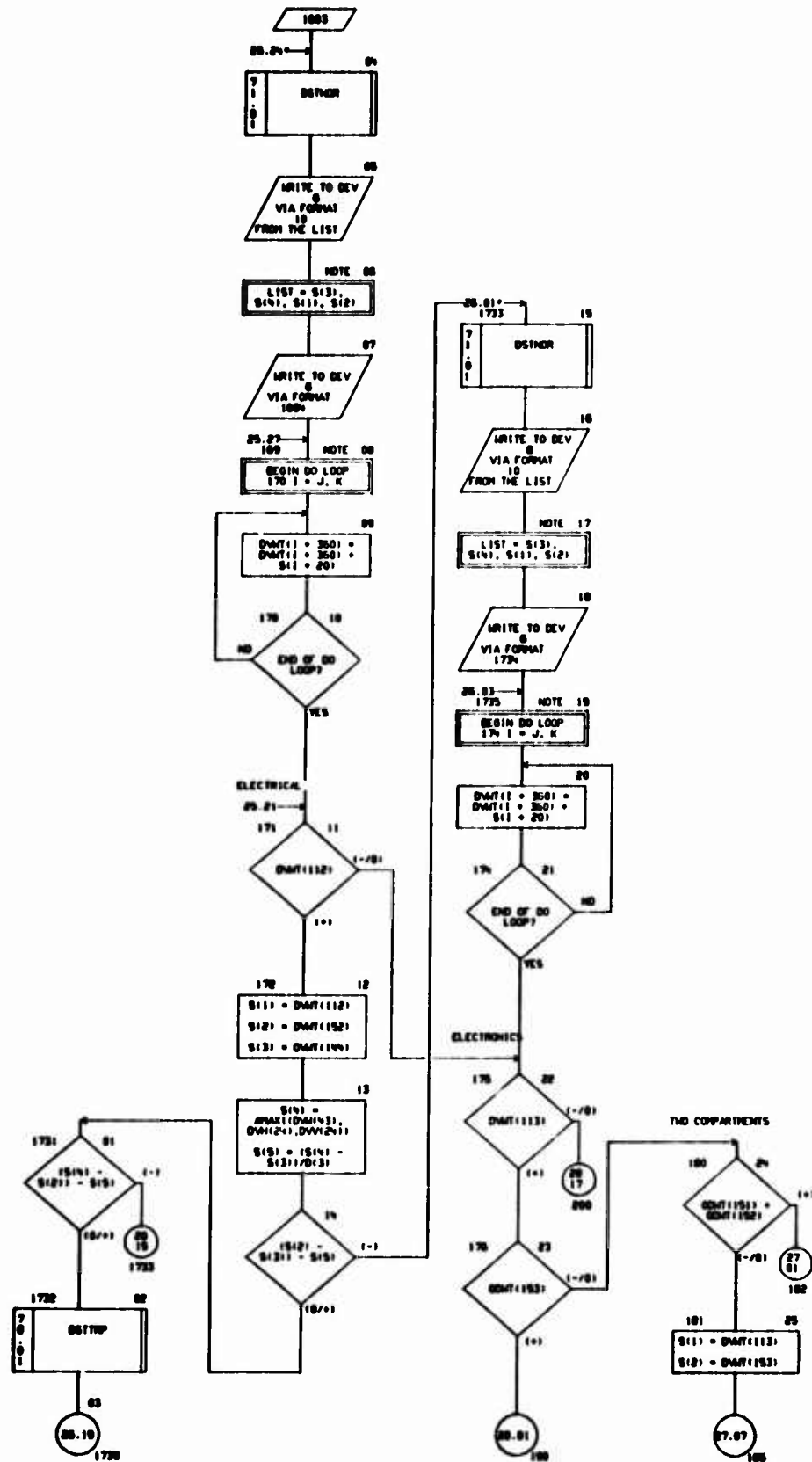


CHART TITLE - SUBROUTINE CONDST

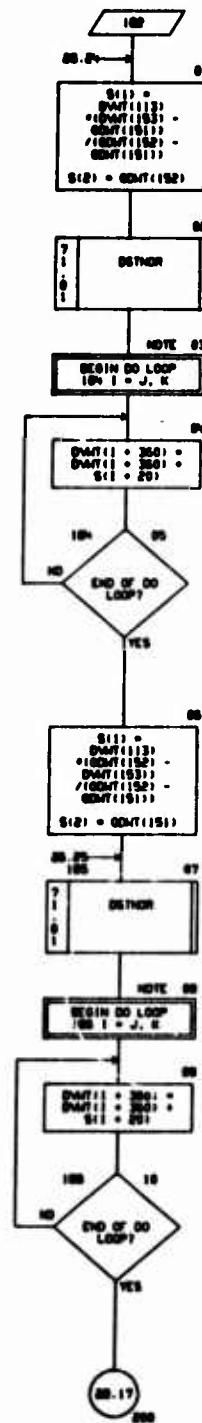


CHART TITLE - SUBROUTINE CDSST

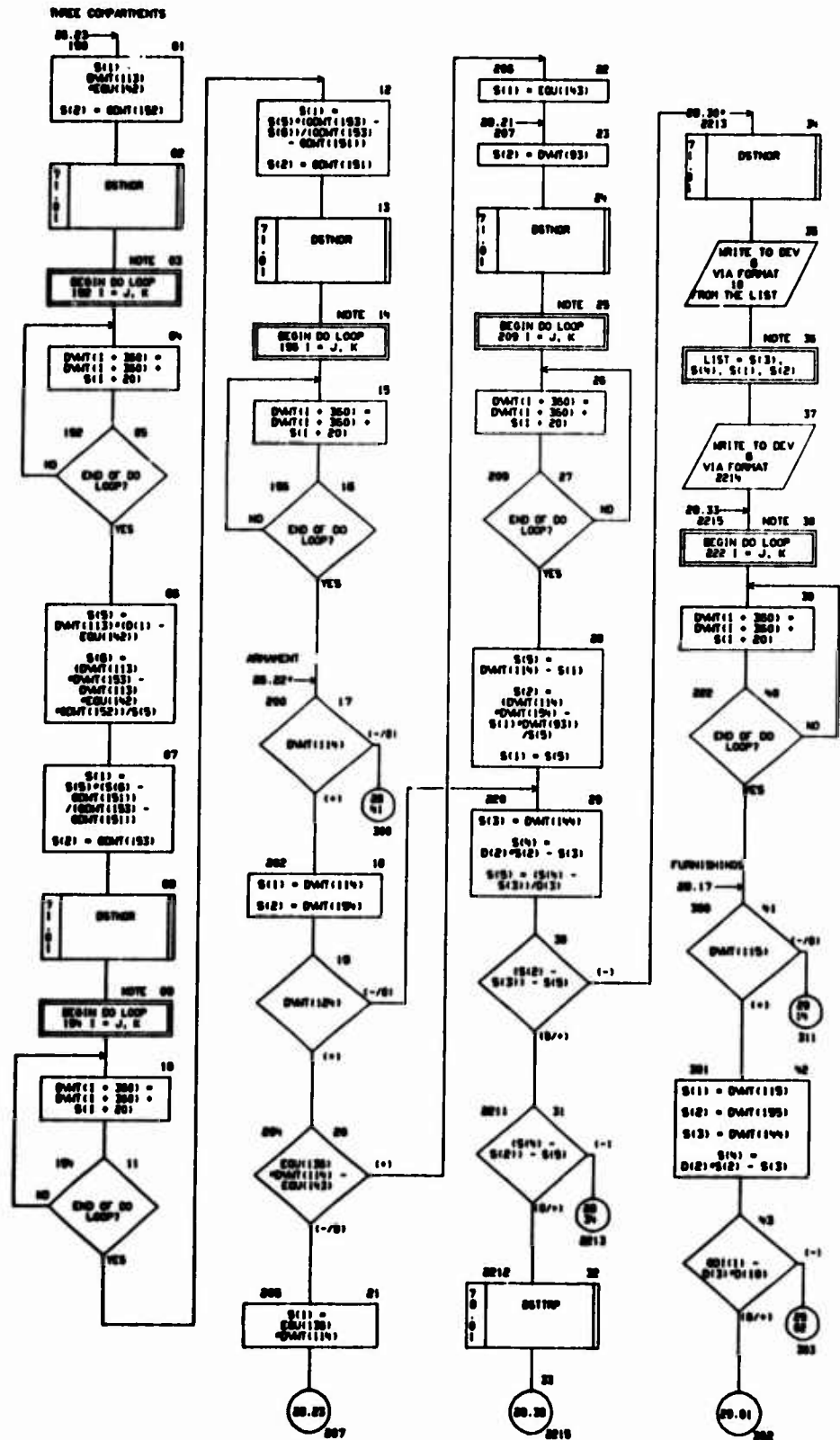


CHART TITLE - SUBROUTINE C0007

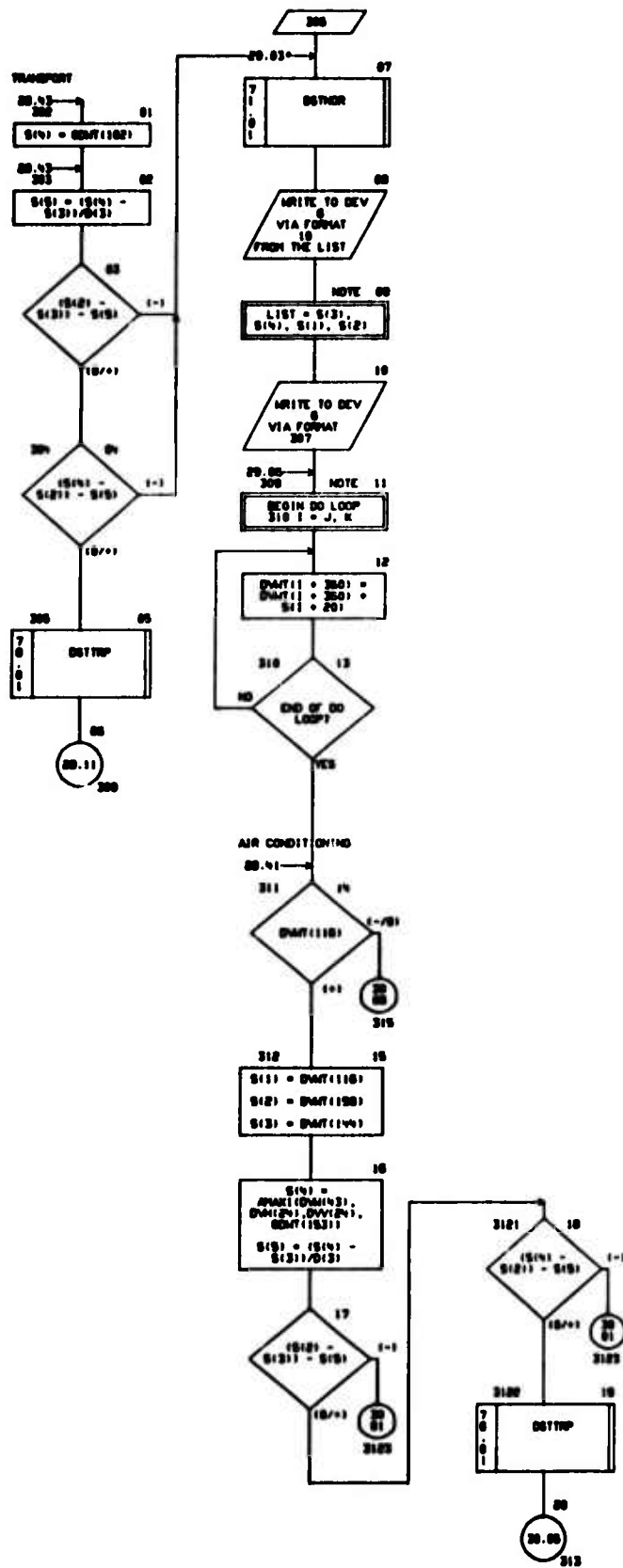


CHART TITLE - SUBROUTINE CONDST

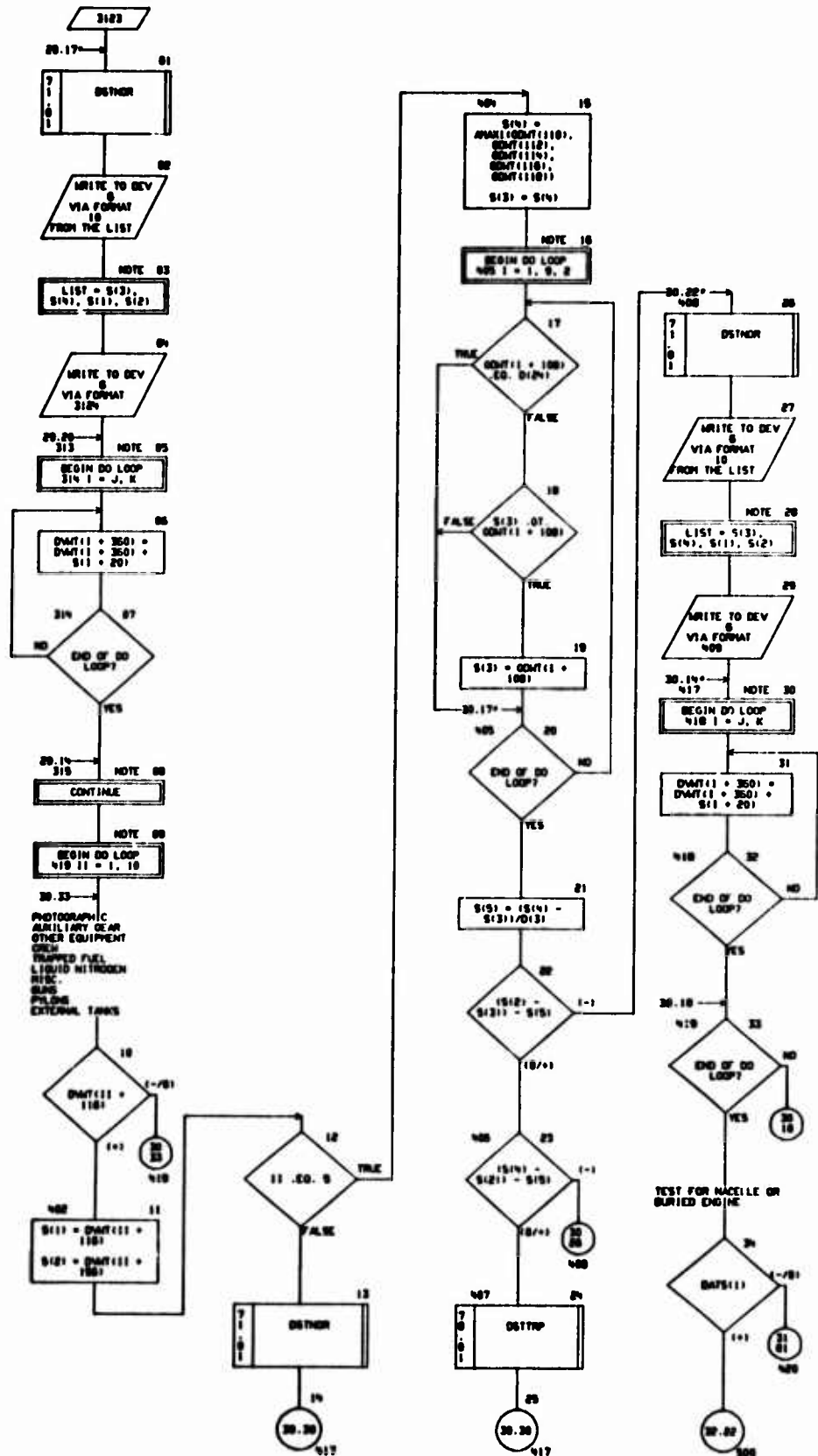


CHART TITLE - SUBROUTINE CODES?

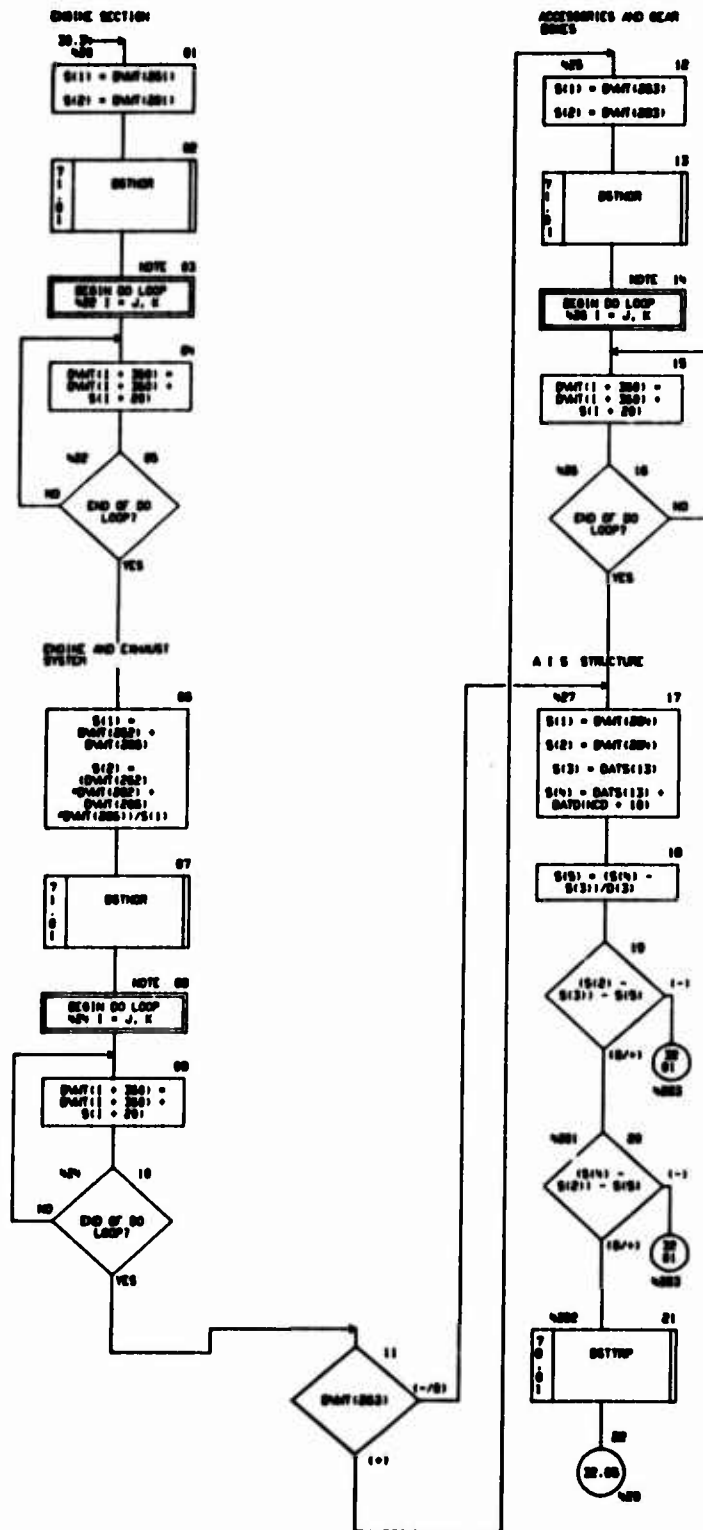
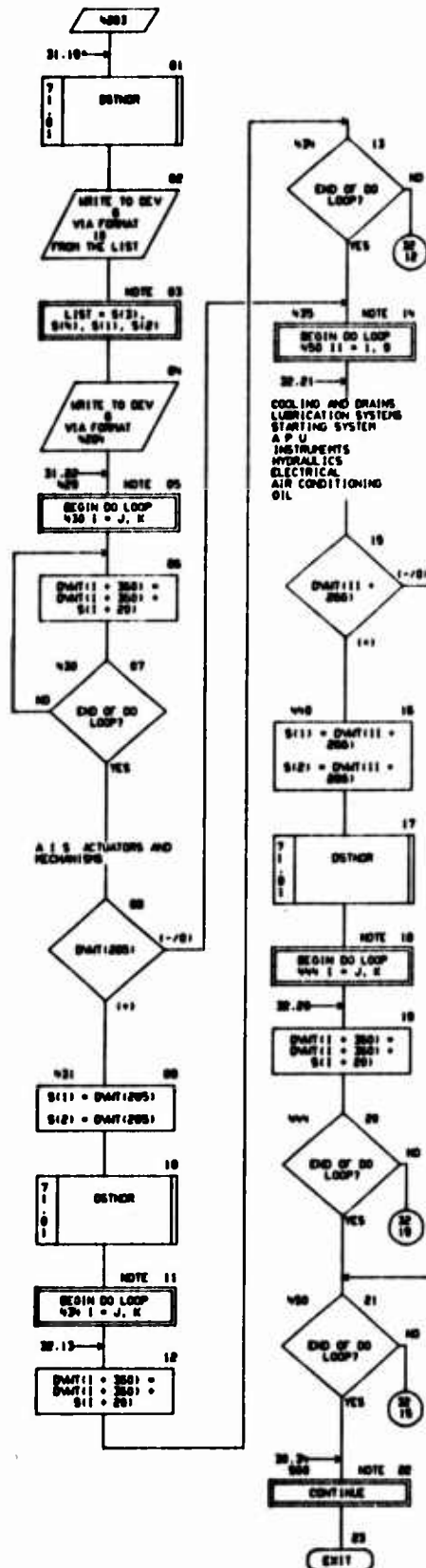


CHART TITLE - SUBROUTINE CH007



GARY TITLE - NON-PROCEDURAL STATEMENTS

```

      OPEN TCON(200)
      DIMENSION D(700),GD(700),DV(220),S(400),ND(200)
      DIMENSION SDU(200)
      DIMENSION GD(120),GDV(100),GDD(80),GATS(40),GATD(70)
      DIMENSION GDM(50),GDM(30),GDM(30),GDM(50)
      EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140)),
        (S(1),TCON(170)),(ND(1),TCON(412))
      EQUIVALENCE (SDU(1),D(81))
      EQUIVALENCE (GD(11),GD(11),GDV(11),GD(911),GDD(11),GD(3011),
        (GATS(1),GD(4011),GATD(1),GD(5011))
      EQUIVALENCE (GDM(1),GDM(3011),GDM(11),GDM(3711),GDM(11),GDM(4011),
        (GDM(1),GDM(11211))
      EQUIVALENCE      (J,ND(100)),(K,ND(103)),(L,ND(104))
      EQUIVALENCE (NEB,ND(117))
10    FORMAT(800)*** WARNING FROM CONST *** /
      30X,30PREVIOUS F0R AND AT LIMITS HERE. OF 10.2/
      30X,712.2,17H LBS AT FUS. STA.,70.2,10H,21H DISTRIBUTED BY OTHER)
124  FORMAT(10H,10H,SURFACE CONTROLS)
136  FORMAT(10H,20H,11H FUEL SYSTEM)
148  FORMAT(10H,20H,11H ENGINE CONTROLS)
160  FORMAT(10H,20H,11H INSTRUMENTS)
180  FORMAT(10H,25H,10H HYDRAULICS)
170  FORMAT(10H,25H,10H ELECTRICAL)
201  FORMAT(10H,27H,10H WARPENT)
207  FORMAT(10H,20H,11H FURNISHINGS)
312  FORMAT(10H,10H,10H AIR CONDITIONING)
400  FORMAT(10H,25H,10H TRAPPED FUEL)
450  FORMAT(10H,20H,10H 1 S STRUCTURE)

```

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE DELCHT

CHART TITLE - SUBROUTINE BELCH

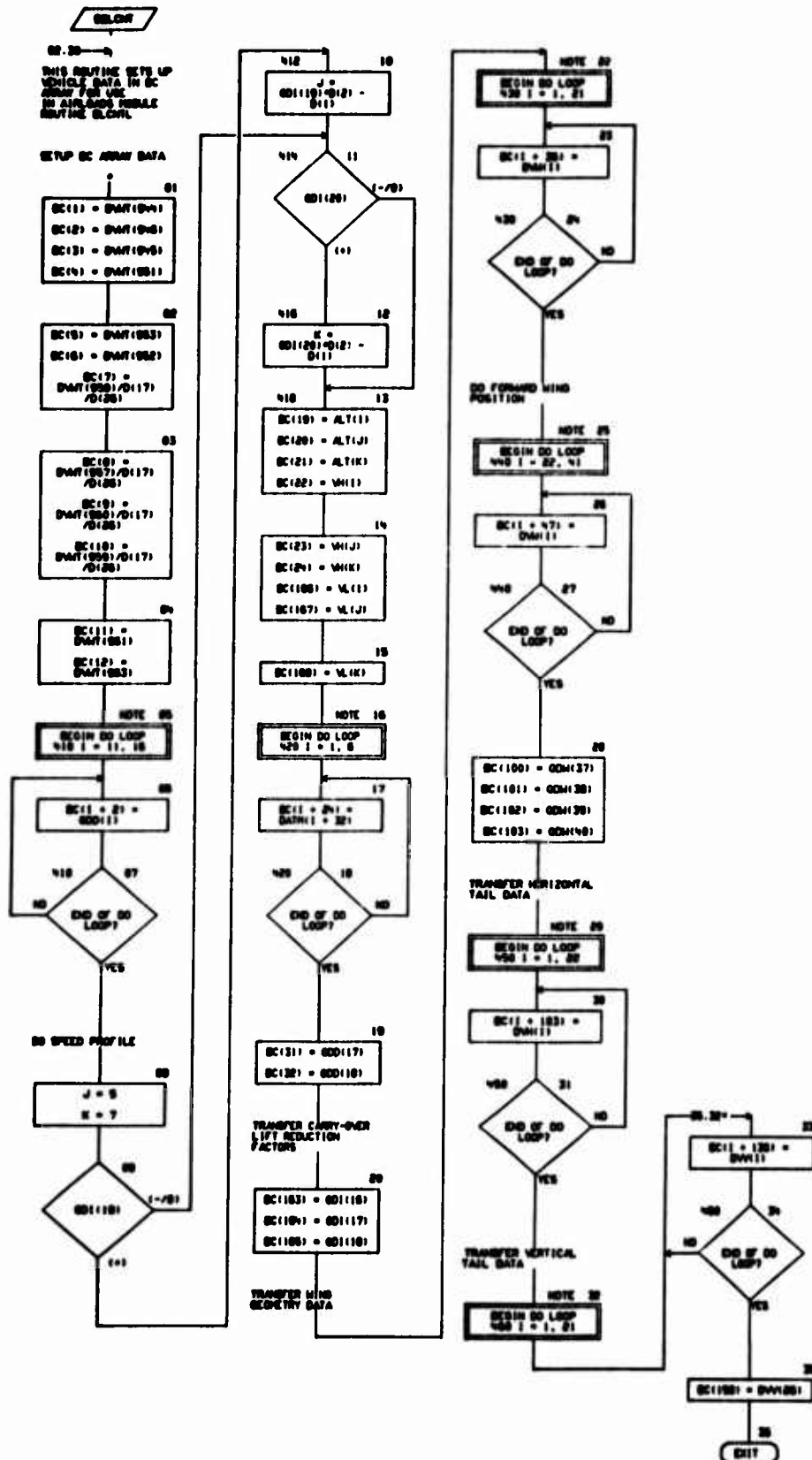


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4320)
DIMENSION DI(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION BC(1000)
DIMENSION OD(120),ODD(20),DATH(40),ODM(50)
DIMENSION DM(50),DM(30),DVI(20),DWT(1000),ALT(10),WH(5),
      VL(10)
EQUIVALENCE (DI(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401))
      , (S(1),TCON(3701)),(ND(1),TCON(4321))
EQUIVALENCE (OD(11),OD(11),ODD(1),ODD(21)),(DATH(1),OD(51))
      , (ODM(1),OD(251))
EQUIVALENCE (DM(1),DV(321)),(DM(1),DV(371)),(DVI(1),DV(401))
      , (DWT(1),DV(1121)),(ALT(1),DV(1)),(WH(1),DV(101))
      , (VL(1),DV(171))
EQUIVALENCE (BC(1),DV(2121))
```

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AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE DCCNTL

623

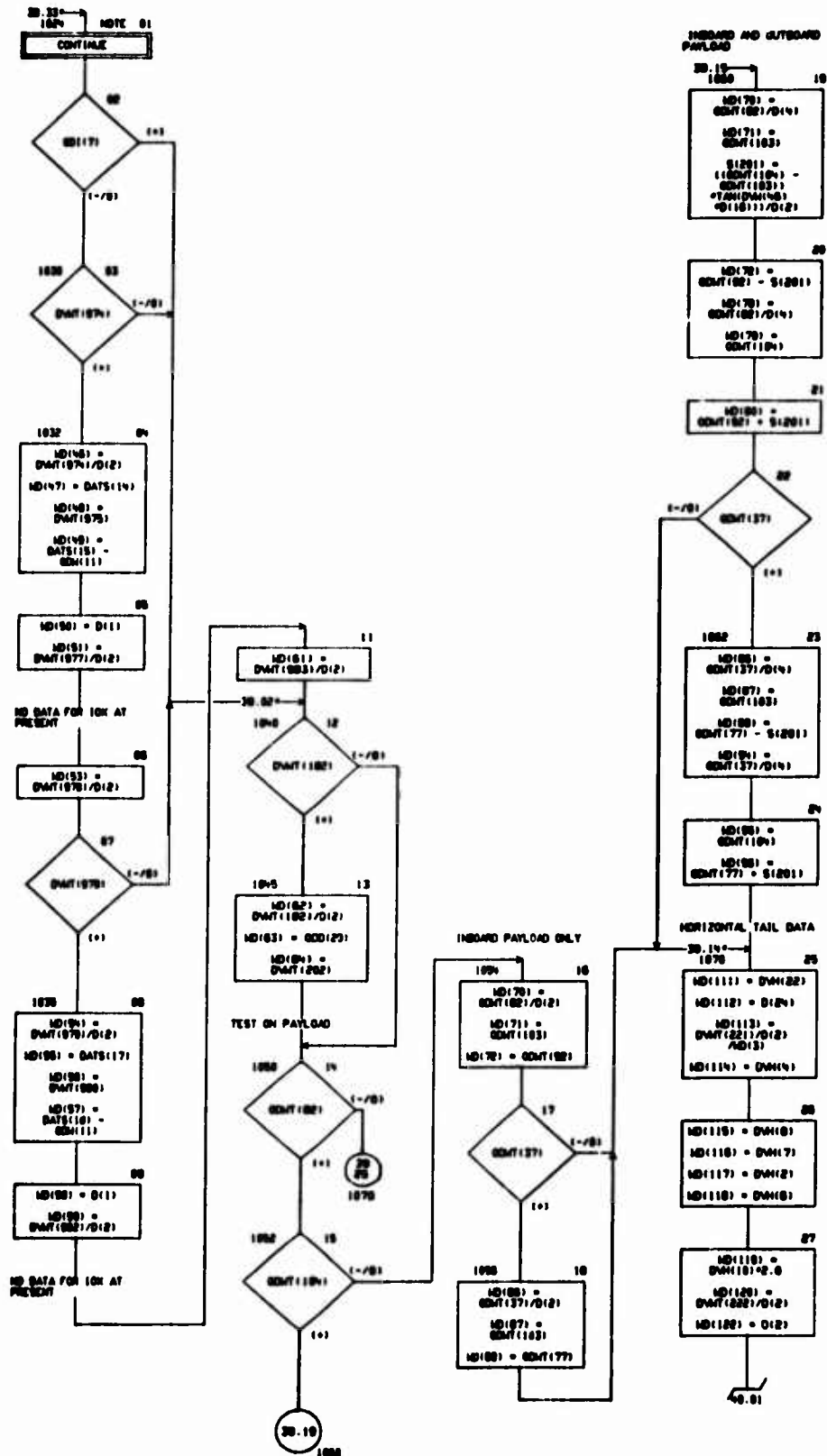


CHART TITLE - SUBROUTINE SCCHVL

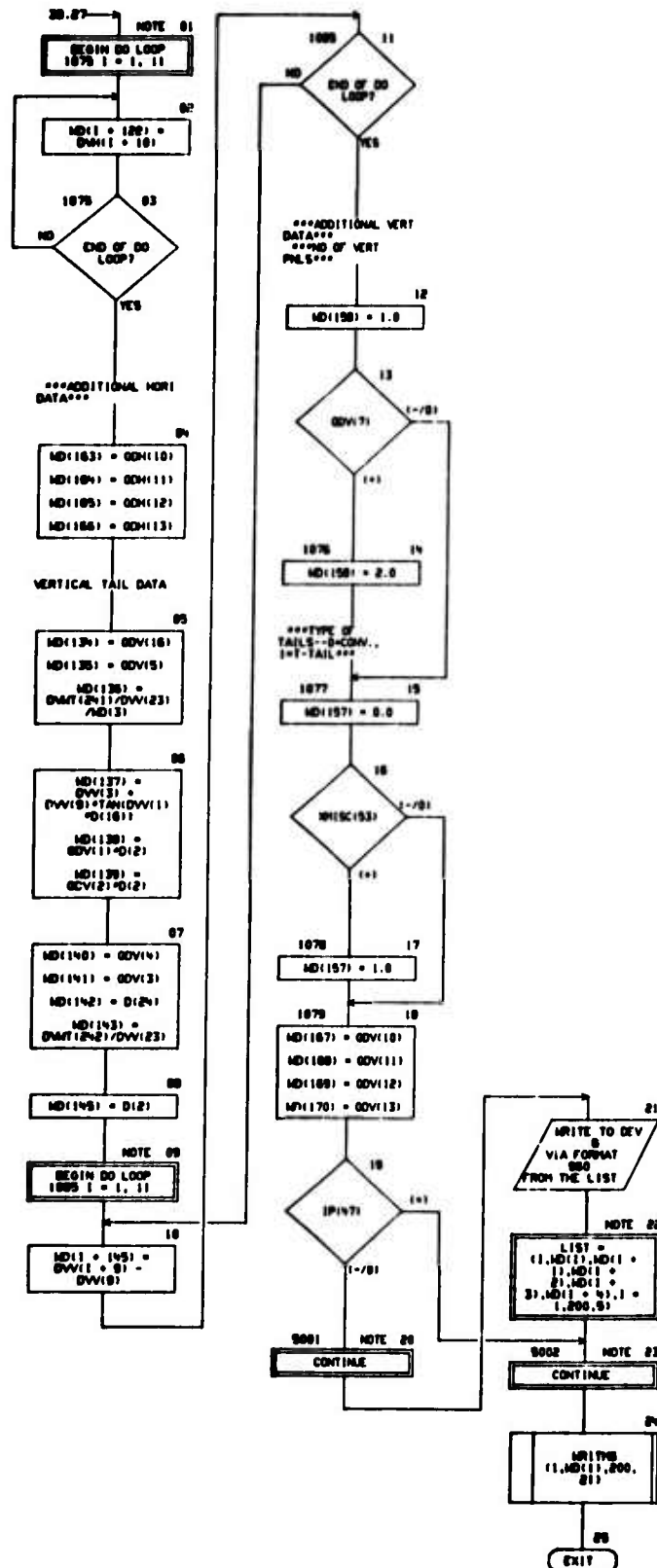


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCOM(4320)
COMMON /MISC/ NMISC(100)
COMMON /PRINT/ IP(00)
DIMENSION B(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION OD(20)
DIMENSION ODD(30),ODMT(100),ODH(50),ODH(40),ODV(40),DATS(40)
DIMENSION OAH(50),OAH(30),OAV(30),OAWT(1000)
DIMENSION DSP(10)
DIMENSION MD(200)
EQUIVALENCE (O(1),TCOM(1)),(OD(1),TCOM(701)),(DV(1),TCOM(1401))
, (S(1),TCOM(2701)),(ND(1),TCOM(4121))
EQUIVALENCE (OD(1),OD(1))
EQUIVALENCE (ODD(1),OD(2)),(ODMT(1),OD(9)),(ODH(1),OD(29))
, (ODH(1),OD(30)),(ODV(1),OD(34)),(DATS(1),OD(40))
EQUIVALENCE (OAH(1),DV(32)),(OAH(1),DV(37)),(OAV(1),DV(40))
, (OAWT(1),DV(112))
EQUIVALENCE (DSP(1),DV(31))
EQUIVALENCE (MD(1),S(1))
000 FORMAT(10H MD(1) FROM DECNLT,70X,21H** DECNLT - IP(47) **
(110, 9F10.4))

```

01/08/79

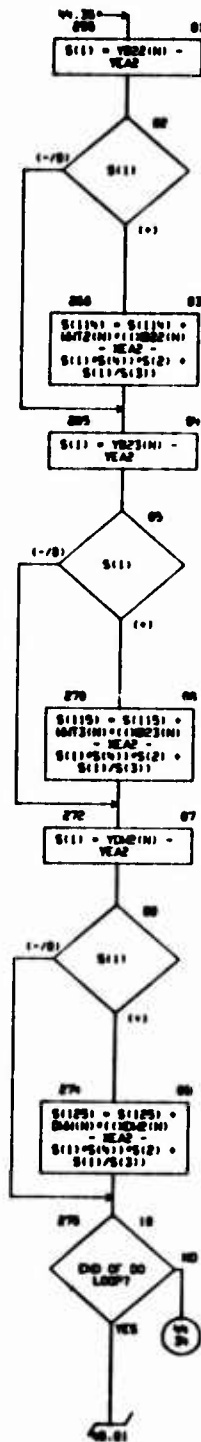
AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS[illegible]

629

CHART TITLE - SUBROUTINE S7A7B



631

CHART TITLE - SUBROUTINE OFATNS

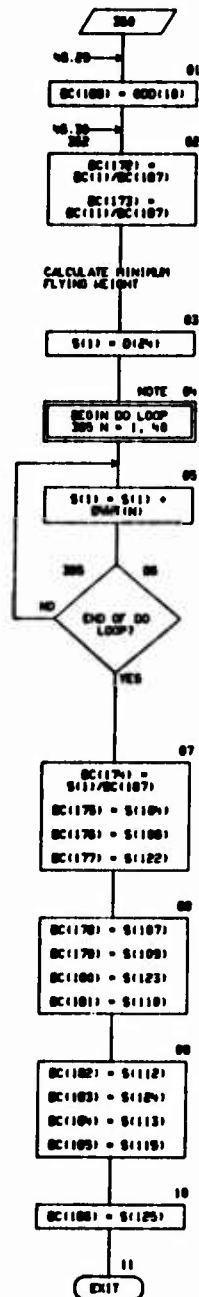


CHART FILE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4320)
COMMON /MISC/ MISC(100)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
, DWT(1000)
, OD(100), DATS(40), DM(50), BC(200), MNT(112), MNT2(112)
, MNT3(112), MB1(112), MB2(112), YB1(112), YB2(112), MB12(112)
, MB22(112), YB12(112), YB22(112), MB13(112), MB23(112), YB13(112)
, YB23(112), GDD(30)
DIMENSION DMH(12),MDM(112),MDMF(112),VDM(112),VDMF(112)
EQUIVALENCE (TCON(1),D(1)), (TCON(70),OD(1)), (TCON(140),DV(1))
, (TCON(210),S(1)), (TCON(412),ND(1))
, (DV(12),DM(1)), (DV(112),DWT(1)), (DV(212),BC(1))
, (OD(1),OD(1)), (OD(2),GDD(1)), (OD(40),DATS(1))
, (YEAR,DWT(304)), (YEAR,DWT(396))
, (YEAR,DWT(308)), (YEAR,DWT(397))
, (YB ,DM(1))
EQUIVALENCE (MNT(1),DWT(407)), (MNT2(1),DWT(52))
, (MNT3(1),DWT(645)), (MB1(1),DWT(569)), (MB2(1),DWT(58))
, (YB1(1),DWT(583)), (YB2(1),DWT(605)), (MB12(1),DWT(617))
, (MB22(1),DWT(629)), (YB12(1),DWT(641)), (YB22(1),DWT(653))
, (MB13(1),DWT(665)), (MB23(1),DWT(677)), (YB13(1),DWT(689))
, (YB23(1),DWT(70))
EQUIVALENCE (DMH(1),DWT(872))
, (MDM(1),DWT(896)), (MDMF(1),DWT(908))
, (VDM(1),DWT(920)), (VDMF(1),DWT(932))

```

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AUTOFLEX CHART SET - SHEEP

DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE BLANK
.....

ROUTINE TITLE - SUBROUTINE SLABER

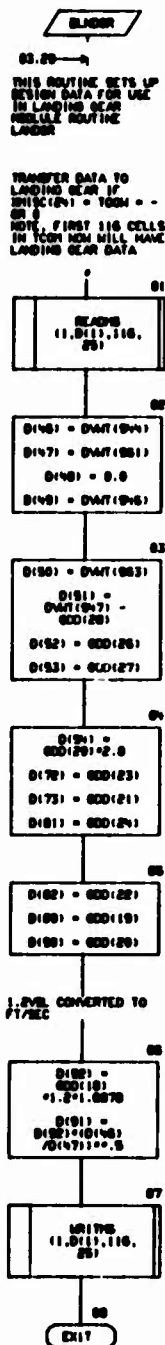


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4320)
DIMENSION D(1700),GD(700),DV(2320),S(400),ND(200)
DIMENSION GDD(30),GVAL(1000)
EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(701)),(DV(1),TCON(1401))
, (S(1),TCON(3701)),(ND(1),TCON(4121))
EQUIVALENCE (GDD(1),GD(21)),(GVAL(1),DV(1121))
```

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AUTOFLEX CHART SET - SHEEP

DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE SHIELD
#####

CHART TITLE - SUBROUTINE DWALD

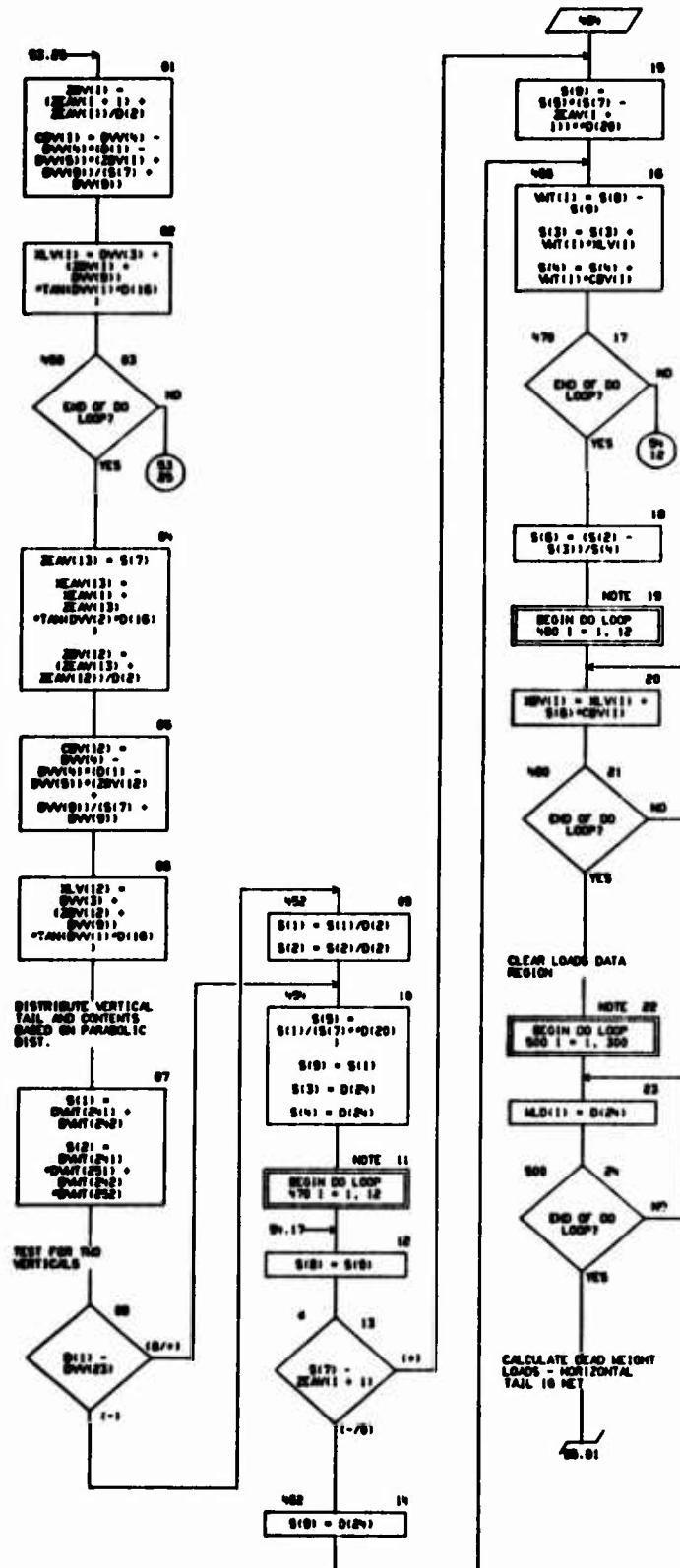


CHART TITLE - SUBROUTINE SHAWLS

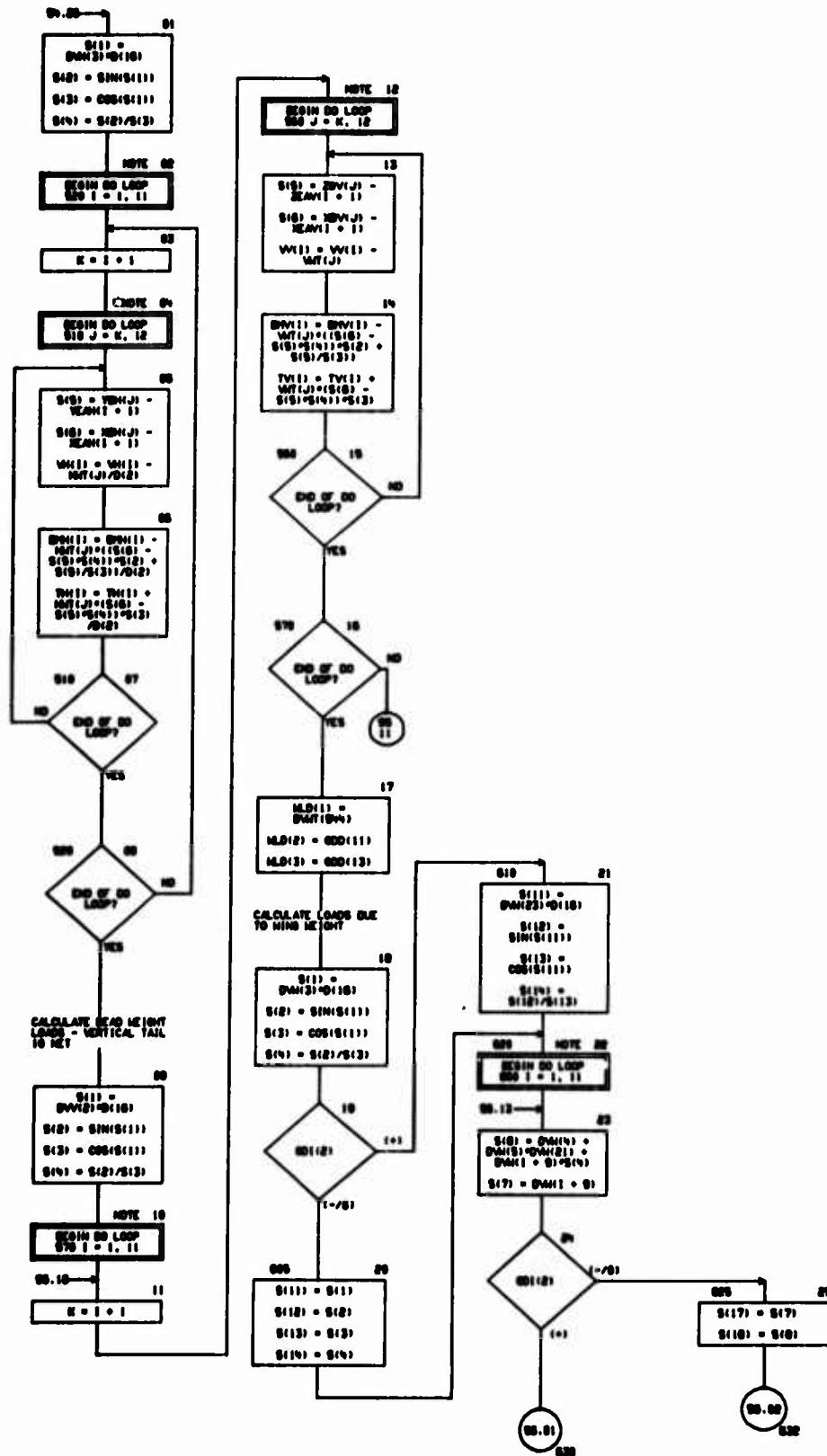


CHART TITLE - SUBROUTINE DMAILD

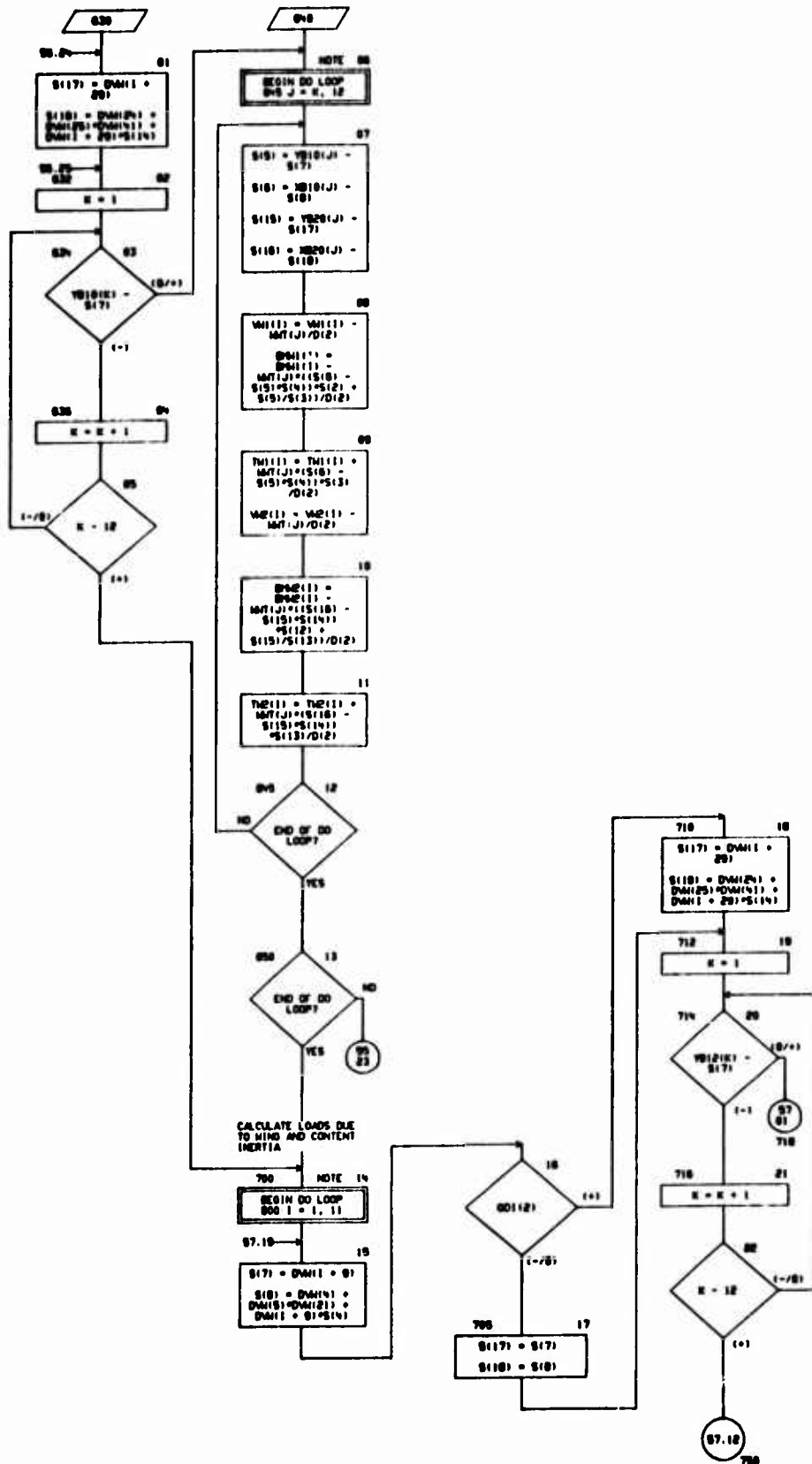


CHART TITLE - SUBROUTINE CHWLD

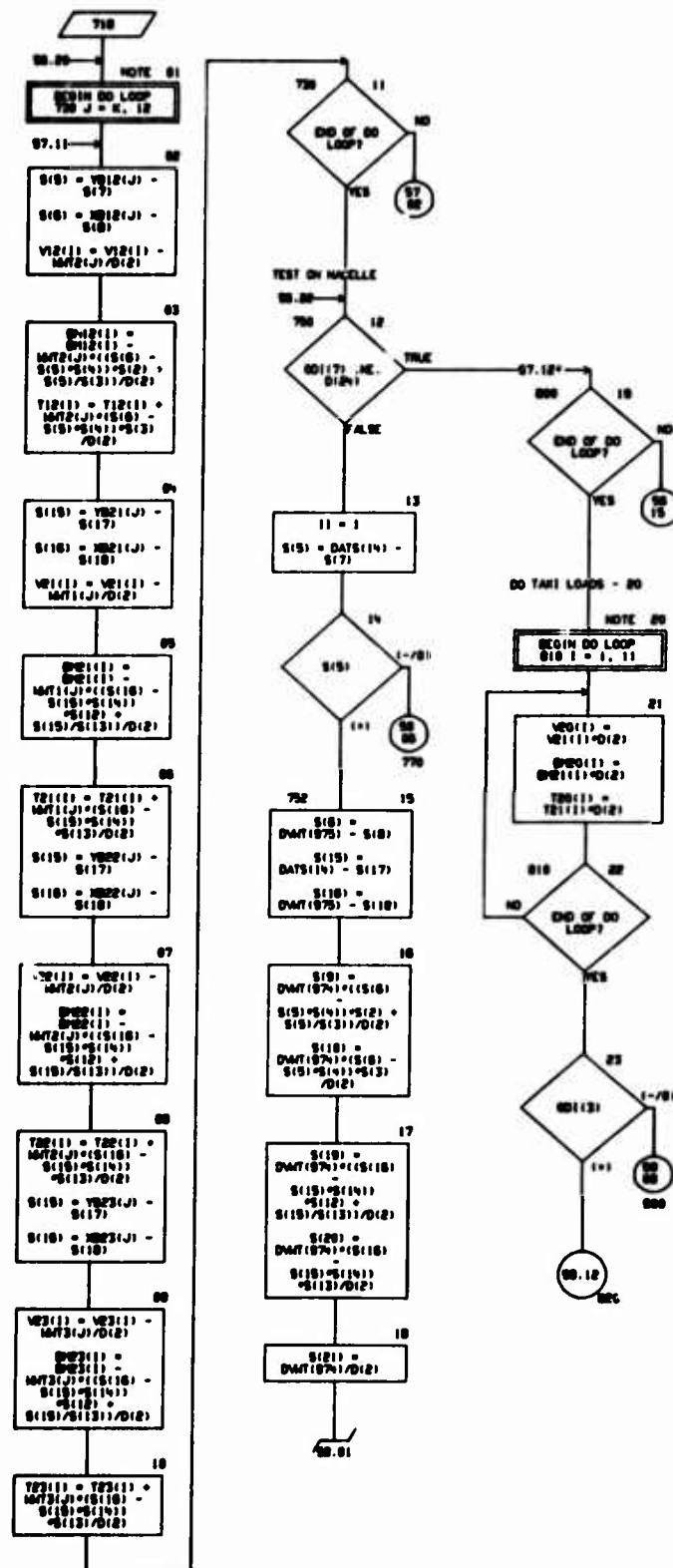


CHART TITLE - SUBROUTINE CHWILD

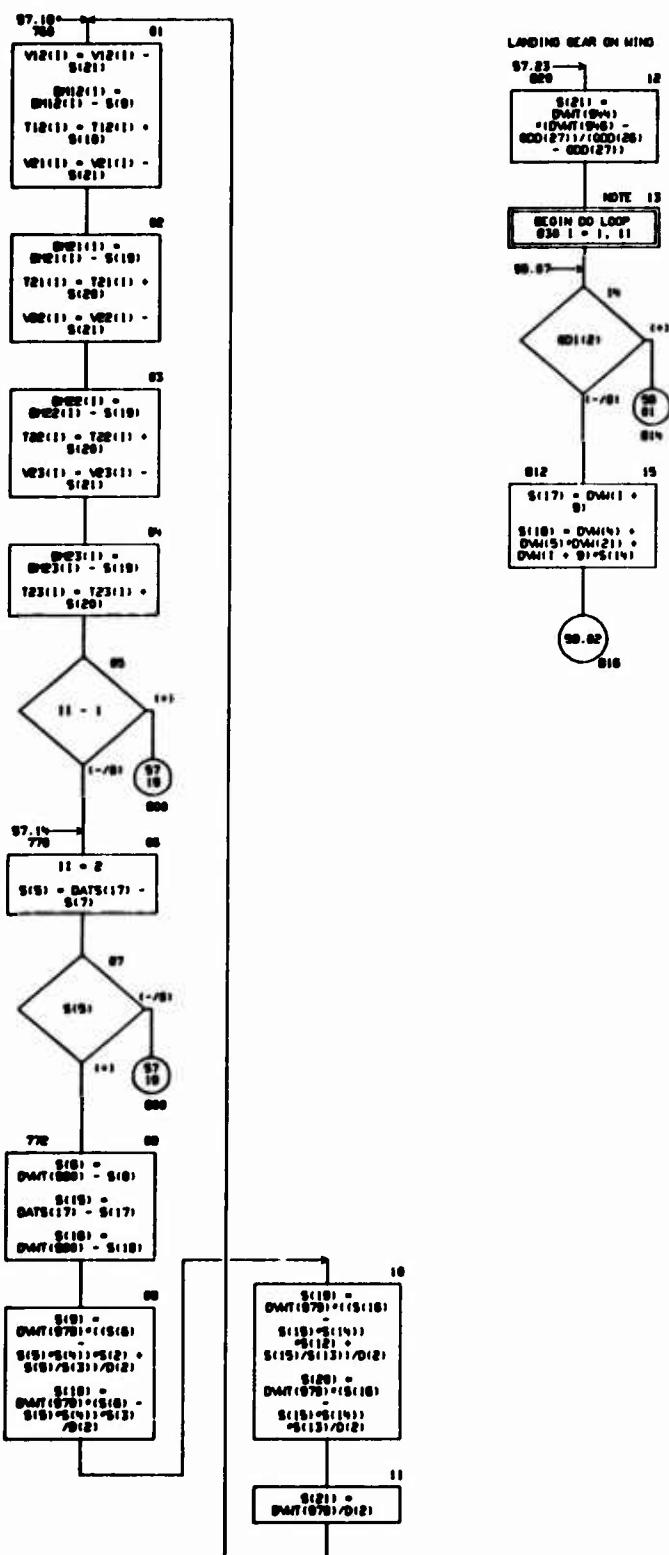


CHART TITLE - SUBROUTINE CHWLD

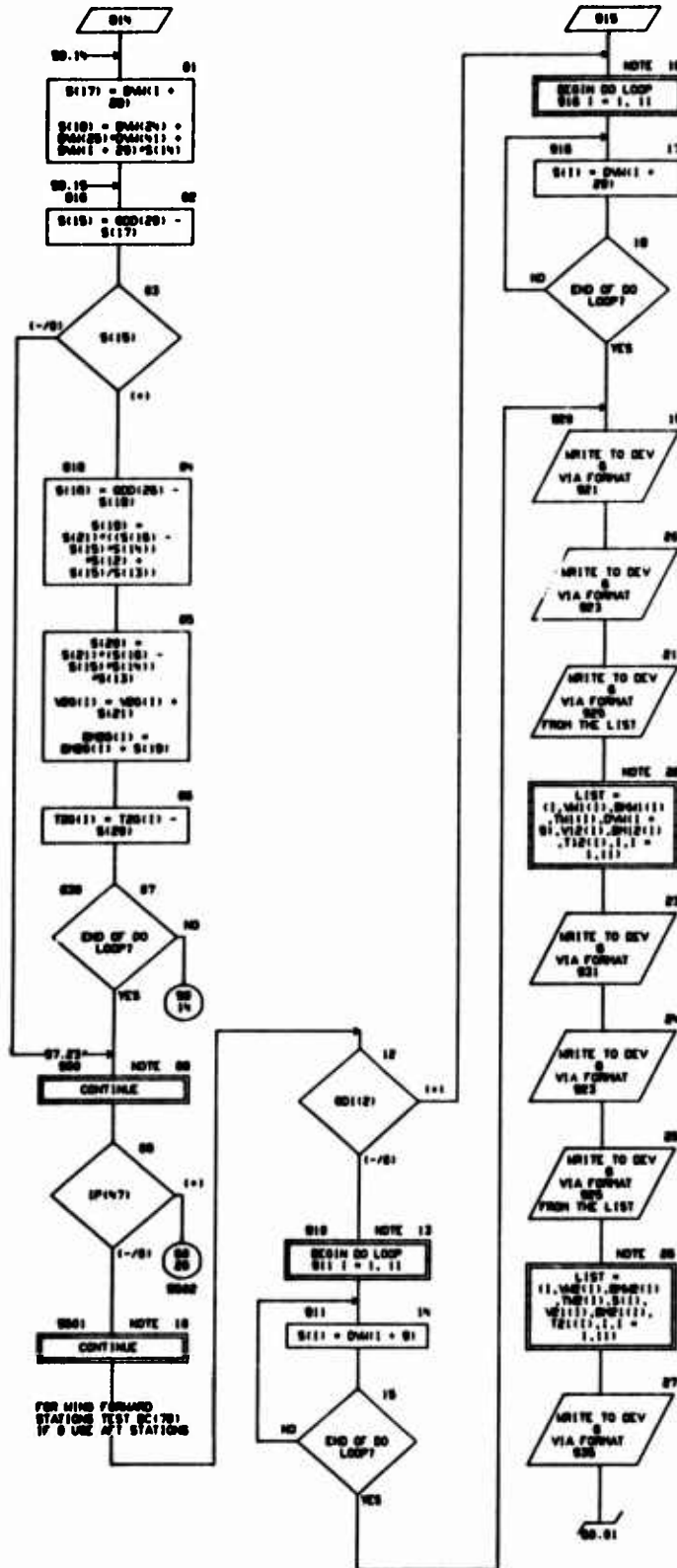


CHART TITLE - SUBROUTINE SPWALD

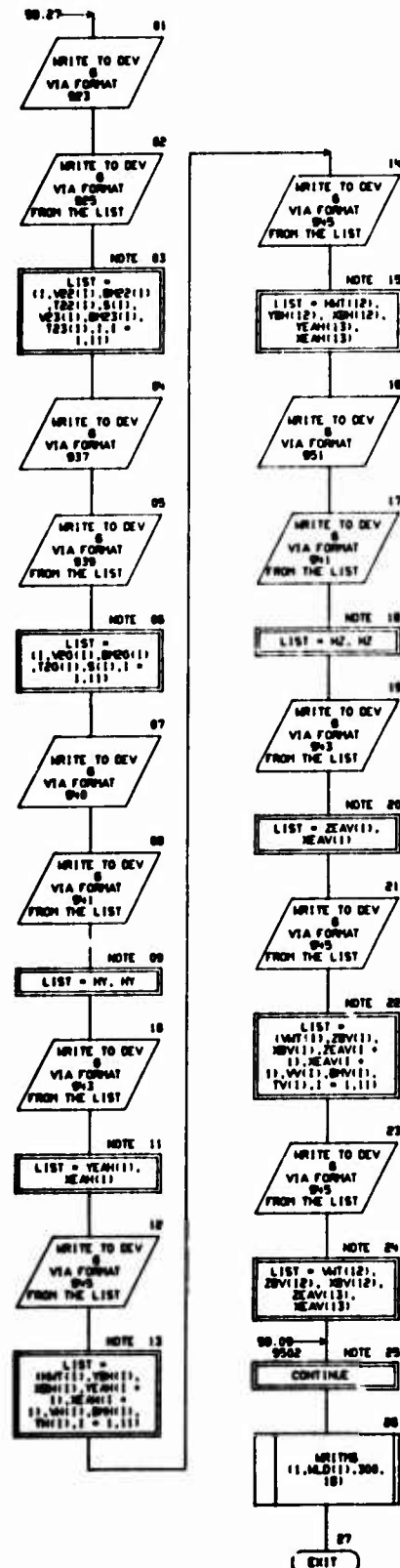


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4200)
COMMON /IPRINT/ (P(00))
DIMENSION B(1700),GB(1700),DV(1220),S(1400),ND(1200)
DIMENSION GD(120),GDD(120),DATS(140)
DIMENSION DWH(50),DWH2(30),DWH3(30),DWT(1000)
DIMENSION YB(112),YB2(112),YB3(112),YB4(112),YB5(112)
DIMENSION MBT(112),MBT2(112),MBT3(112),MB1(112),MB2(112),YB1(112)
, YB2(112),YB3(112),YB4(112),YB5(112),YB6(112),YB7(112)
, YB8(112),YB9(112),YB10(112)
DIMENSION MBT1(12),YB1(12),YB2(12),YB3(12),YB4(12),YB5(12)
DIMENSION YEAM(13),YEAM2(13),YEAM3(13),YEAM4(13)
, CBN(12),MLM(12),CBV(12),MLV(12)
DIMENSION MLD(300)
DIMENSION VDB(111),DBW(111),T20(111),WH(111),BWH(111),TH(111)
, VDB2(111),DBW2(111),TH2(111),VDB3(111),DBW3(111),T21(111)
, VDB4(111),DBW4(111),T22(111),VDB5(111),DBW5(111),T23(111)
, VDB6(111),DBW6(111),T24(111),VDB7(111),DBW7(111),TH1(111)
, VDB8(111),DBW8(111),TH2(111)
EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(701)),(DV(1),TCON(1401))
, (S(1),TCON(3701)),(ND(1),TCON(421))
EQUIVALENCE (GD(1),GD(1)),(GDD(1),GDD(1)),(DATS(1),GD(1401))
EQUIVALENCE (DWH(1),DV(321)),(DWH(1),DV(371)),(DWH(1),DV(401))
, (DWT(1),DV(1121))
EQUIVALENCE (YB(1),DWT(401)),(YB2(1),DWT(431))
, (YB3(1),DWT(461)),(YB4(1),DWT(491)),(YB5(1),DWT(521))
EQUIVALENCE (MBT(1),DWT(551)),(MBT2(1),DWT(581))
, (MBT3(1),DWT(611)),(MB1(1),DWT(641)),(MB2(1),DWT(671))
, (YB1(1),DWT(701)),(YB2(1),DWT(731)),(YB3(1),DWT(761))
, (YB4(1),DWT(791)),(YB5(1),DWT(821))
, (YB6(1),DWT(851)),(YB7(1),DWT(881)),(YB8(1),DWT(911))
, (YB9(1),DWT(941)),(YB10(1),DWT(971))
EQUIVALENCE (YEAM(1),S(1401)),(YEAM2(1),S(1402)),(YEAM3(1),S(1403))
, (YEAM4(1),S(1404))
EQUIVALENCE (MLD(1),S(101))
EQUIVALENCE (VDB(1),MLD(41)),(DBW(1),MLD(45)),(T20(1),MLD(201))
, (WH(1),MLD(371)),(BWH(1),MLD(401)),(TH(1),MLD(501))
, (VDB2(1),MLD(701)),(DBW2(1),MLD(81)),(TH2(1),MLD(921))
, (VDB3(1),MLD(103)),(DBW3(1),MLD(114)),(T21(1),MLD(125))
, (VDB4(1),MLD(130)),(DBW4(1),MLD(147)),(T22(1),MLD(150))
, (VDB5(1),MLD(160)),(DBW5(1),MLD(160)),(T23(1),MLD(181))
, (VDB6(1),MLD(202)),(DBW6(1),MLD(213)),(T24(1),MLD(224))
, (WH1(1),MLD(235)),(BWH1(1),MLD(246)),(TH1(1),MLD(257))
, (VDB7(1),MLD(280)),(DBW7(1),MLD(270)),(TH2(1),MLD(290))
EQUIVALENCE (CBN(1),MLD(1)),(MLM(1),MLD(13))
, (CBV(1),MLD(25)),(MLV(1),MLD(37))
DATA NY/INY //, NZ/INZ//
001 FORMAT(1M1,NX,SWHEAR,XPONENT AND TORQUE,ENX,
, 21M** ENVALD - (P(47)) **, // 10X,10M** ONLY AT
10, 33X, 23M** AND CONTENTS AT 10// 20X, 10M** POSITION, 33X,
23M** POSITION GROSS HEIGHT 2 )
002 FORMAT(1M1, 1, EN,SWHEAR,EN,XPONENT,EN,ENTORQUE,EN,10M** PLANE
11X,SWHEAR,EN,XPONENT,EN,ENTORQUE, EN,1M1 //
003 FORMAT(114,3F12.0,EN,1F6.1,EN,3F12.0,EN,113 )
004 FORMAT(11M1, 10X,10M** ONLY AT 10,33X,23M** AND CONTENTS AT 10
//10X,10M** POSITION, 20X, 23M** POSITION AT GROSS HEIGHT
1 )
005 FORMAT(1M1,ENX,21M** ENVALD - (P(47)) **,
10X, 23M** AND CONTENTS AT 10, 30X, 23M** AND CONTE
NTS AT 10 // EN, 23M** POSITION AT GROSS HEIGHT 2, 10X,
23M** POSITION AT GROSS HEIGHT 3 )

```

CHART TITLE - NON-PROCEDURAL STATEMENTS

```

037  FORMAT(1H0,4BX, 2PHET WIND LOADS AT 20 TAXI// 3BX, 3HFORWARD PO
      SITION AT CROSS HEIGHT 1 // 2BX, 1H1,5X,5HSHEAR,5X,5HPOWENT, 5X,
      5HFORBLE, 5X,10HBUIT PLANE // )
038  FORMAT(2BX, 11X, 2F12.0, 5X, 1F8.1 )
040  FORMAT(1H1, 3BX, 20HORIZONTAL TAIL AND CONTENTS ,
      2BX,21H** (P147) **//)
041  FORMAT(7X,15HCOORD. OF C. A., 5BX,2HSECTION, 5X, 11HCOORDINATES /
      11X, 1A1, 5X, 1HX, 5X, 5HSHEAR, 5X, 5HPOWENT, 5X, 5HFORBLE, 14X,
      5HHEIGHT, 5X, 1A1, 4H BAR, 5X, 5X BAR //)
043  FORMAT( 4X,2F10.2)
045  FORMAT(70X,1F14.2,2F10.2/ 4X, 2F10.2, 3F14.0 )
051  FORMAT(1H1,3BX, 20HVERTICAL TAIL AND CONTENTS ,
      2BX,21H** (P147) **//)

```

01/02/79

AUTOFLOW OWR1 SET - BEEP DATA MANAGEMENT MODULE

PAGE 03

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE DSDPR

CHART TITLE - SUBROUTINE DSDGPR

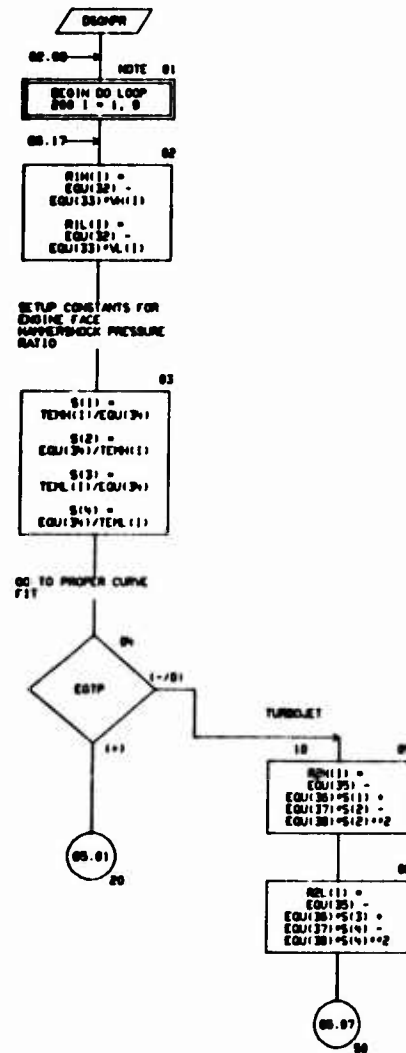
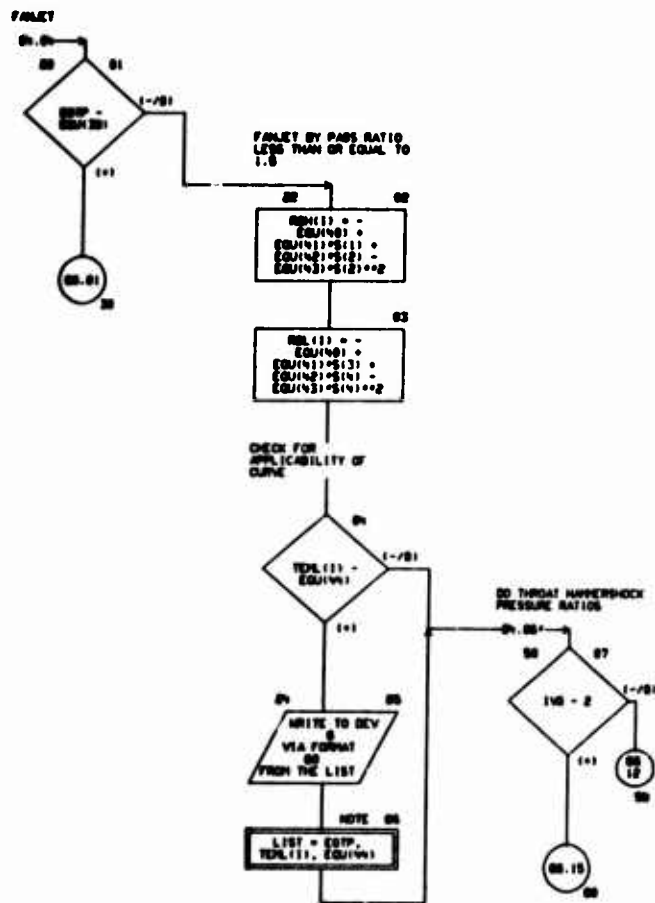


CHART TITLE - SUBROUTINE BEEP



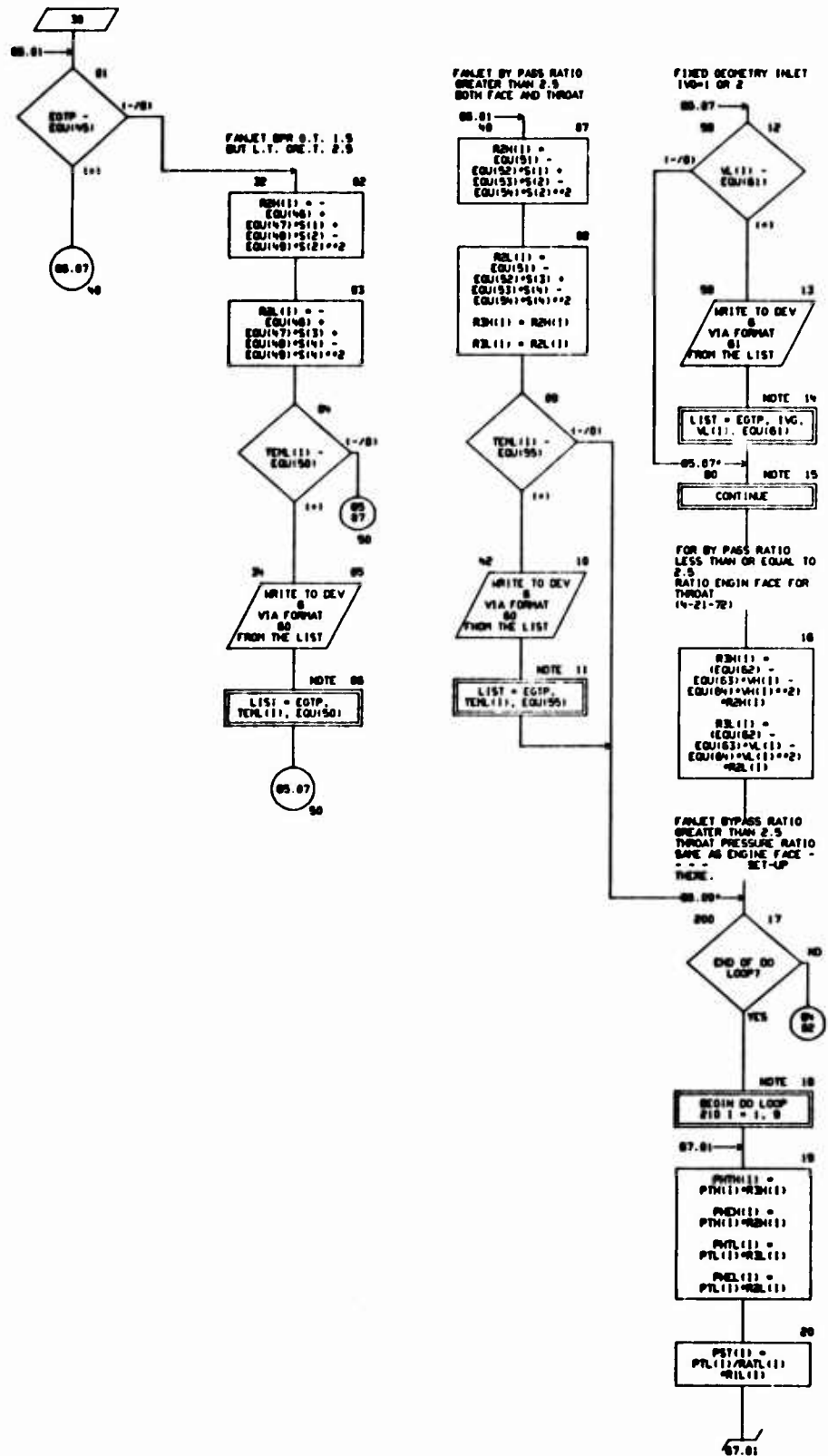


CHART TITLE - SUBROUTINE 00049

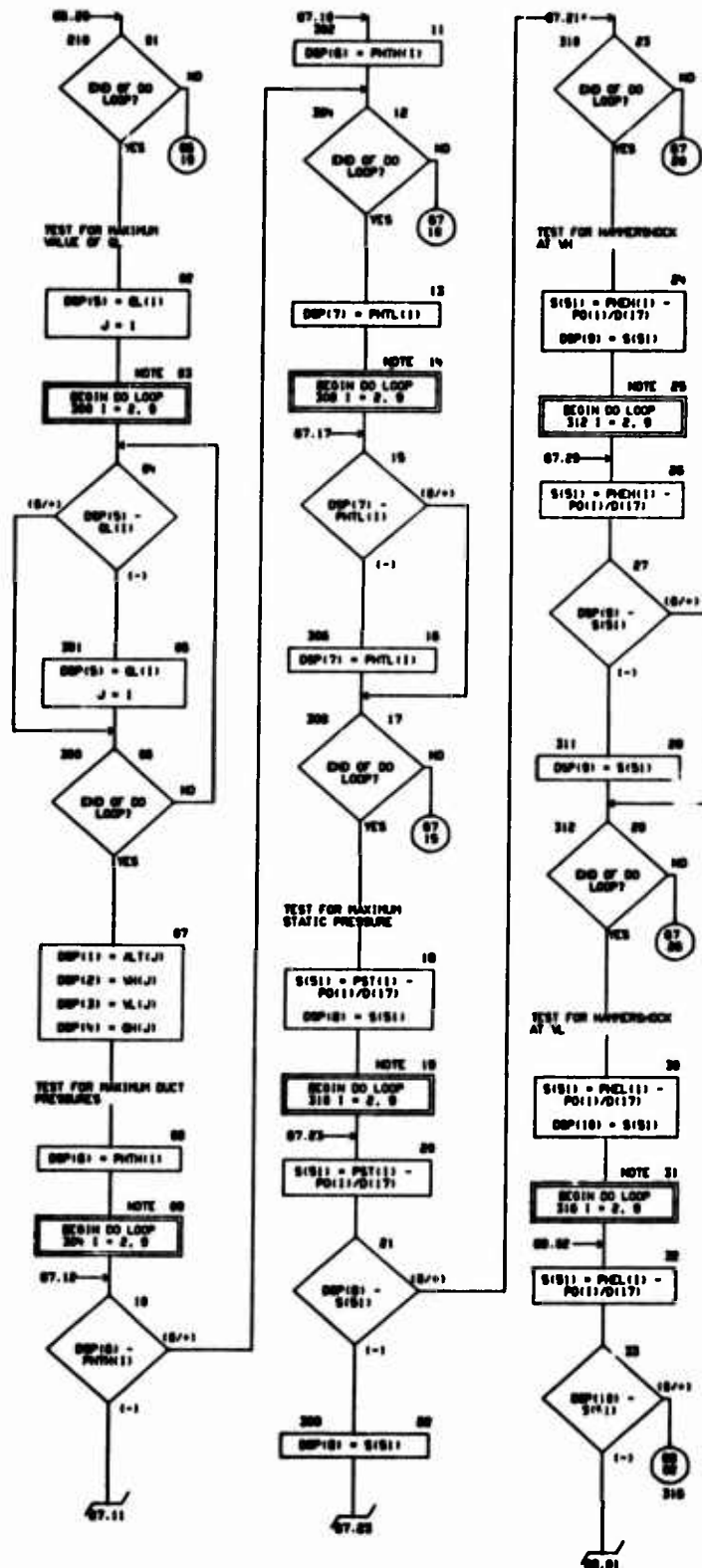


CHART TITLE - SUBROUTINE 060494

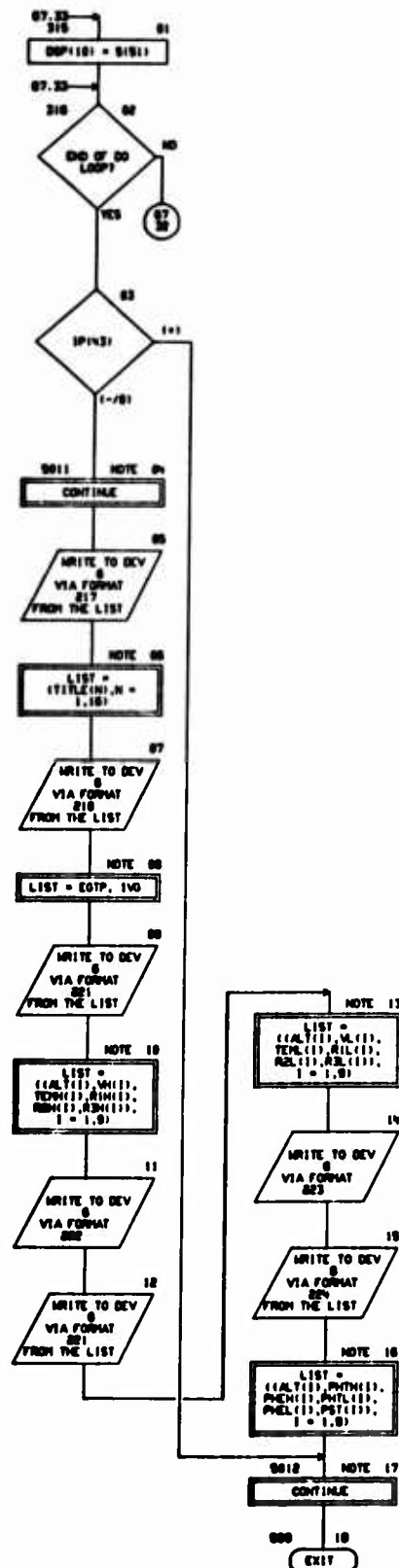


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(420)
COMMON /MISC/ MHSC(100)
COMMON /PRINT/ IP(80)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION DATS(40)
DIMENSION TITLE(10)
DIMENSION ALT(10),VM(10),VL(10),TDM(10),TDL(10),PTH(10),
PTL(10),PL(10),RIM(10),RIL(10),RSH(10),REL(10),RSM(10),
REL(10),PMH(10),PMH(10),PMTL(10),PML(10),PST(10),RATL(10)
DIMENSION OH(10),OL(10),PO(10)
DIMENSION OSP(10)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401)),
(S(1),TCON(3701)),(ND(1),TCON(4121))
EQUIVALENCE (EQU(1),D(81))
EQUIVALENCE (DATS(1),OD(461))
EQUIVALENCE (EOTP,DATS(2))
EQUIVALENCE (TITLE(1),MHSC(99))
EQUIVALENCE (OH(1),DV(81)),(OL(1),DV(91)),
(PO(1),DV(21))
EQUIVALENCE (ALT(1),DV(11)),(VM(1),DV(61)),(VL(1),DV(71)),
(TDM(1),DV(41)),(TDL(1),DV(51)),(PTH(1),DV(61)),
(PTL(1),DV(17)),(PL(1),DV(18)),(RIM(1),DV(20)),
(RIL(1),DV(21)),(RSH(1),DV(22)),(REL(1),DV(23)),
(RSM(1),DV(24)),(REL(1),DV(25)),(PMH(1),DV(26)),
(PMH(1),DV(27)),(PMTL(1),DV(28)),(PML(1),DV(29)),
(PST(1),DV(30)),(RATL(1),DV(31))
EQUIVALENCE (OSP(1),DV(31))
EQUIVALENCE (ND(101),1),(ND(102),J)
EQUIVALENCE (ND(112),1V0)
00  FORMAT(1H1,20X,23H*** WARNING MESSAGE ***//10X,
41HMIN TEMPERATURE EXCEEDED FOR FANLET BPR =,F5.1/10X,
10HMIN TEMP =,F8.2,7HINIT =,F8.2)
01  FORMAT(1H1,20X,23H*** WARNING MESSAGE ***//10X,
43HMIN EXCEEDED FOR ENGINE INLET COMBINATION/20X,
50HPR =,F5.1,2X,10HINLET TYPE =,13,2X,70HSPEED =,F5.2,2X,
12HINIT SPEED =,F5.2)
217 FORMAT(1H1,20X,21H** DSMPR - IP(43) ***//10X,8A10/10X,8A10)
210 FORMAT(1H0, 20X, 30HSPEED PROFILE DESIGN CONSTANTS
/ 1H0, 20X, 14HBYPASS RATIO =, F8.2, 20X, 8H1V0 =, 112 /
1H0, 4X, 7HTEMP(1H), 5X, 8HSTATIC(1H), 12X, 10HSHOCK(1H) /
10X, 3HULT, 12X, 3HML, 5X, 11HDEO RANKINE, 5X, 11HPRES. RATIO,
5X, 4HFACE, 11X, 8HTHROAT )
221 FORMAT( 5X, IF13.1, IF14.2, IF17.3, 3F16.4 )
222 FORMAT(1H0,4X,7HTEMP(1),5X,8HSTATIC(1),12X,10HSHOCK(1) /
10X, 3HULT, 12X, 3HML, 5X, 11HDEO RANKINE, 5X, 11HPRES. RATIO,
5X, 4HFACE, 11X, 8HTHROAT )
223 FORMAT(1H0, 20X, 7HPRES(1H), 5X, 7HPRES(1H), 5X, 7HPRES(1), 5X,
7HPRES(1), 10X, 8HSTATIC / 27X, 11HTHROAT-PSIA, 5X,
11HENGINE-PSIA, 5X, 11HTHROAT-PSIA, 5X, 11HENGINE-PSIA, 5X,
11HPRES THROAT )
224 FORMAT( 5X, IF13.1, IF15.2, 4F16.3)

```

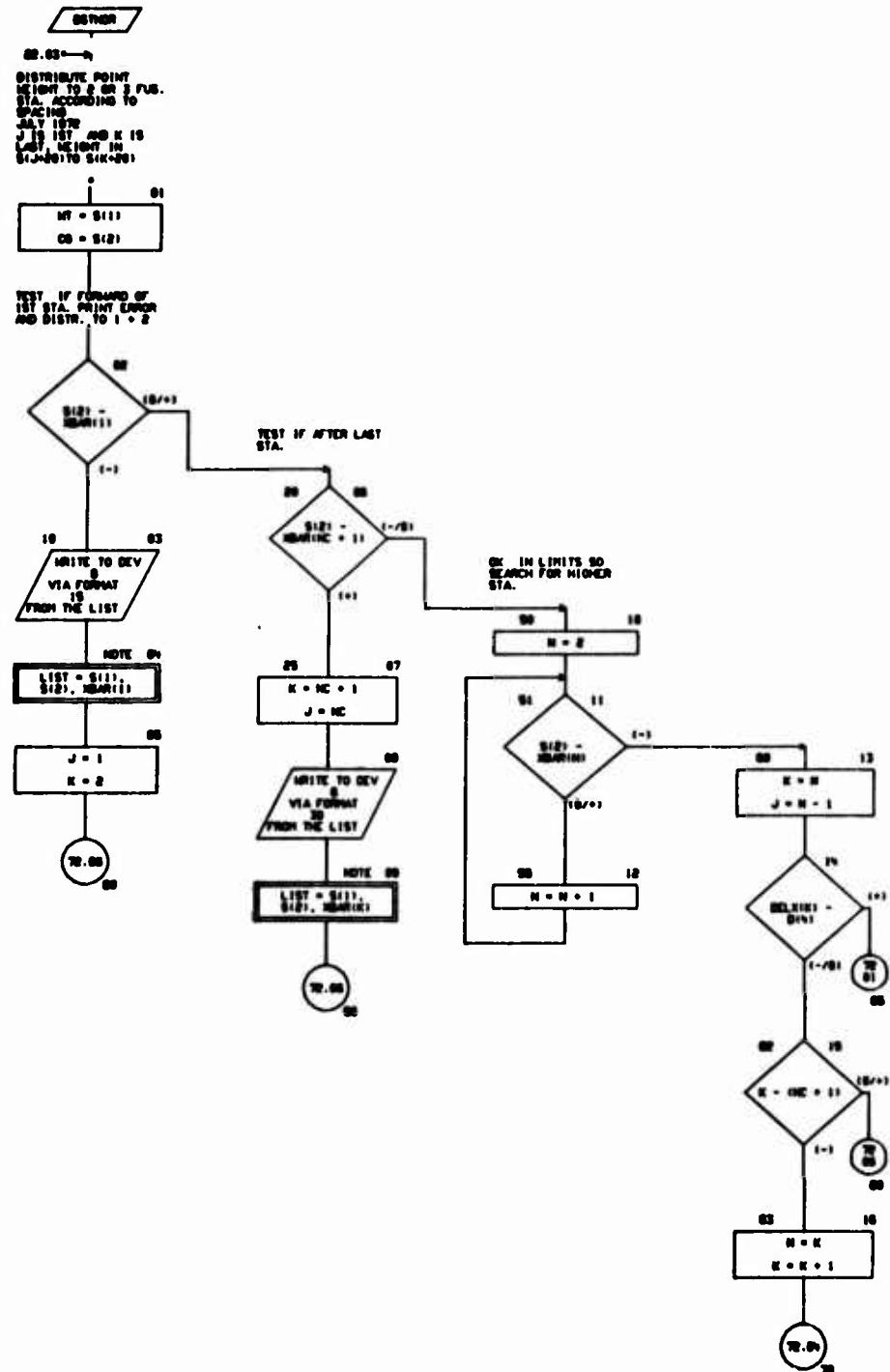
CHART TITLE - INTRODUCTORY COMMENTS

```

=====
SUBROUTINE DSTRNR
=====

```

SUBROUTINE 05THOR



CURT TITLE - SUBROUTINE 0070R

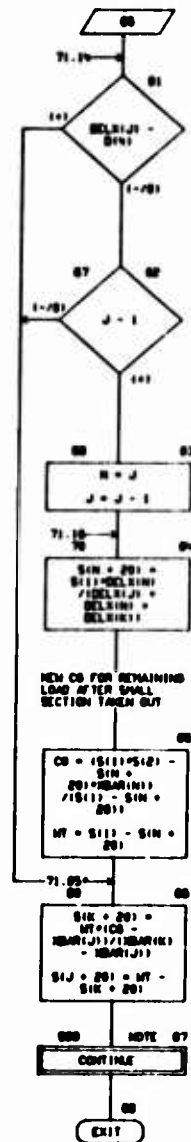


CHART TITLE - NEW-PROCEDURE STANDARDS

```

      COPEN TCON(4,200)
      DIMENSION D(700),          D(1720),S(400),ND(200)
      , ND(100), DELX(20), DND(400)
      DIM VALDE (TCON(1),0(1)), (TCON(10),0(1))
      , (TCON(70),S(1)), (TCON(40),ND(1))
      , (DND(3),DND(1))
      , (DND(14),ND(1)), (DND(10),DELX(1))
      , (DND(10),J), (DND(10),K), (DND(10),M)
10  FORMAT(1M).7M***** IN OTHER, HEIGHT, IE13.0,15M LO. LOCATED AT,
      IE13.0,15M IS END OF 1ST STA., IE13.0, 0M *****
20  FORMAT(1M).7M***** IN OTHER, HEIGHT, IE13.0,15M LO. LOCATED AT,
      IE13.0,20M IS AFT OF LAST STA., IE13.0, 0M *****

```

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE 051701

CHART TITLE - SUBROUTINE 007701

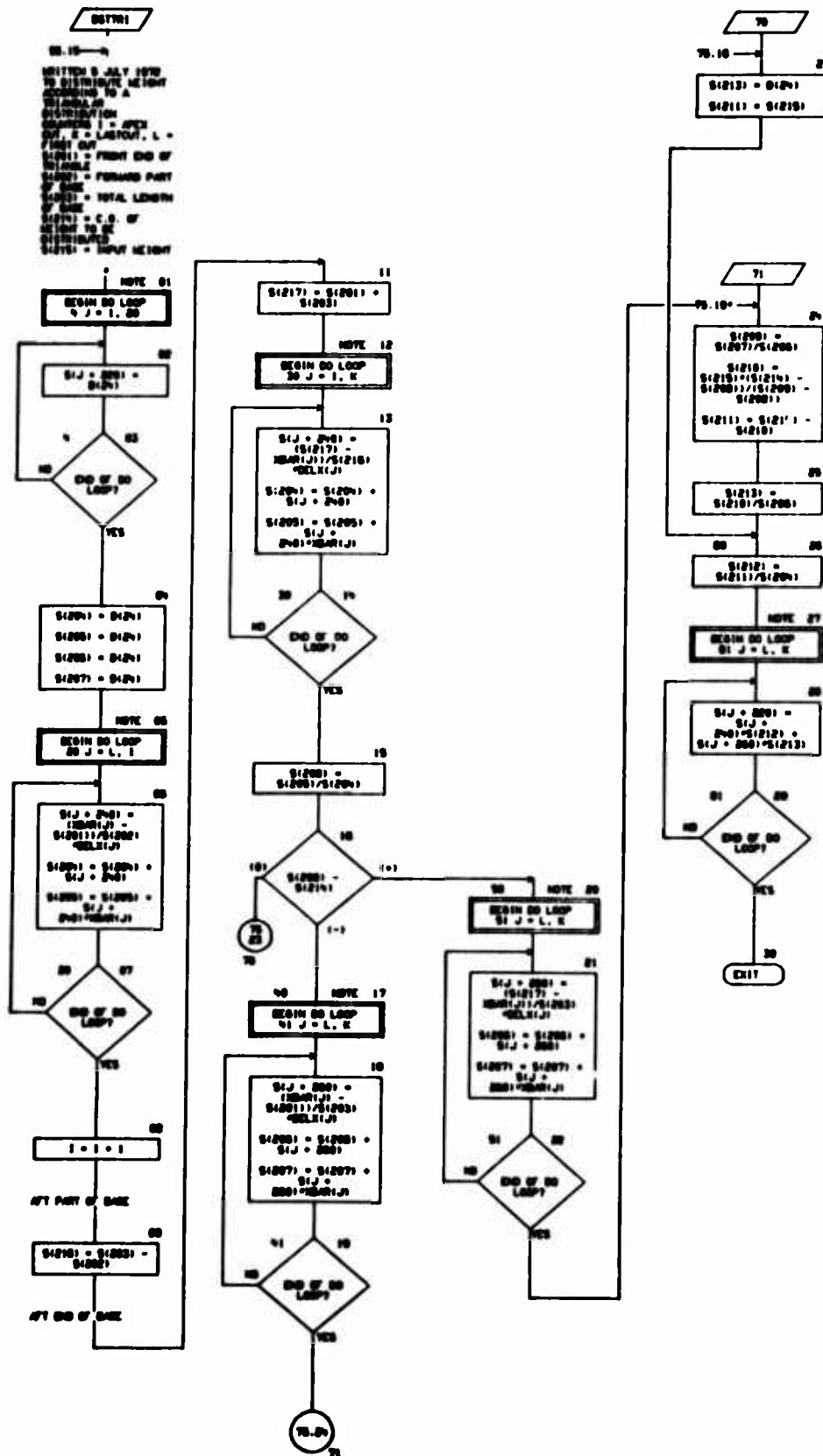


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4320)
DIMENSION S(700),SD(700),DV(2320),S1(400),ND(200)
DIMENSION ND(20),NSAR(20),DELX(20)
DIMENSION GDB(60),DVB(440)
EQUIVALENCE (S(1),TCON(1)),(SD(1),TCON(70)),(DV(1),TCON(140)),
             (S(1),TCON(372)),(ND(1),TCON(412))
EQUIVALENCE (GDB(1),SD(30)),(DVB(1),DV(43))
EQUIVALENCE (ND(1),GDB(50)),(NSAR(1),DVB(141)),(DELX(1),DVB(16))
EQUIVALENCE (1,ND(101)),(2,ND(102)),(3,ND(103)),(4,ND(104))
```

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE PLOT
#####

```

graph TD
    10[10] --> 70_02[70-02]
    70_02 --> N2[N = 2]
    N2 --> 00
    00 --> S1S1{S(1) = S(1+1)}
    S1S1 -- 101 --> 00
    S1S1 -- 00 --> 102
    102 --> N3[N = N + 1]
    N3 --> NLE{N .LE. NEL}
    NLE -- TRUE --> 00
    NLE -- FALSE --> 10
    10 --> JNEL[J = NEL  
K = NEL]
    JNEL --> 70_03[70-03]
    70_03 --> 11[11]
    11 --> 12[WRITE TO DEV  
VIA FORMAT  
FROM THE LIST]
    12 --> 13[MOVE IF  
LIST = S(1),  
S(2), S(3), S(4),  
J, N]
    13 --> 70_13((70-13))
    70_13 --> 102
    102 --> 13
    13 --> JN1[J = N - 1]
    JN1 --> 70_01((70-01))
    70_01 --> 00
    00 --> 101
    101 --> 07
    07 --> JN[J = N]
    JN --> 00
    00 --> 101

```

[illegible]

CHART TITLE - SUBROUTINE 00110P

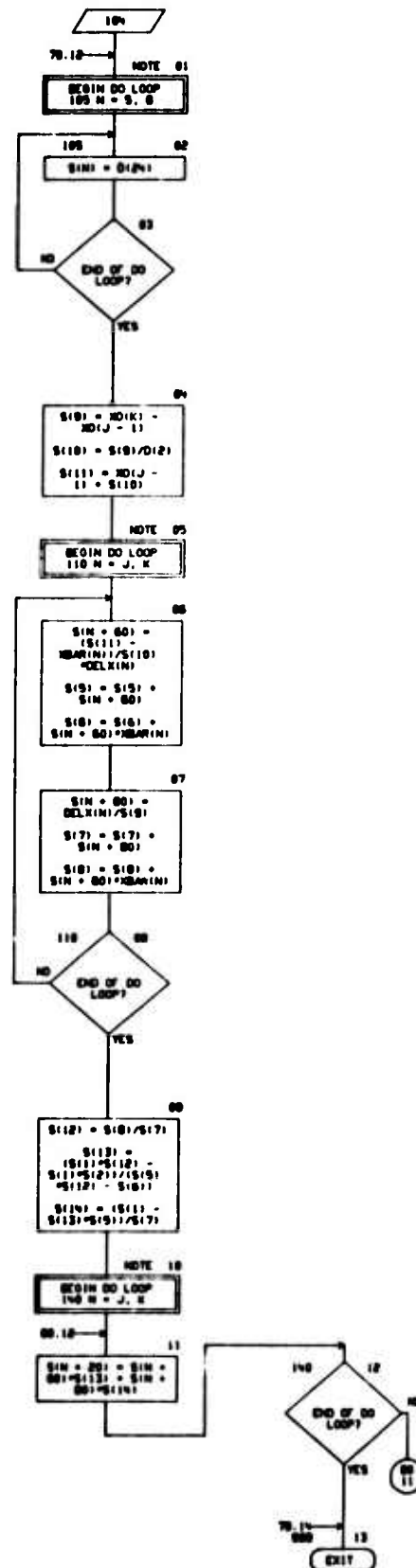


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

      GOVERN TCORH(200)
      DIMENSION D(700),ND(700),DV(2320),S(400),ND(200)
      . GOB(00), GVB(40), X0(20), XBAR(20), DELX(20)
      SUBROUTINE (TCORH(1),S(1)), (TCORH(70),S0(1)), (TCORH(40),DV(1))
      . (TCORH(37),S(1)), (TCORH(42),ND(1))
      . (ND(30),S0(1)), (S0(00),X0(1))
      . (DV(43),GVB(1)), (GVB(44),XBAR(1)), (GVB(40),DELX(1))
      . (ND(10),J), (ND(10),K), (ND(11),NC)
      IF
      FORMAT(///1H0,VDH***** IN DETTRP, HEIGHT CANNOT BE DISTRIBUTED /
      10K, 20K=,1714.2,2K, 30K=,170.2, 2K, 40K=, 170.2, 40K=,
      170.2,10KRETURN J,K =, 113, 1H,,113 )

```

01/00/74

AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE

PAGE 02

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE SUCCED
#####

CHART TITLE - SUBROUTINE SUCEO

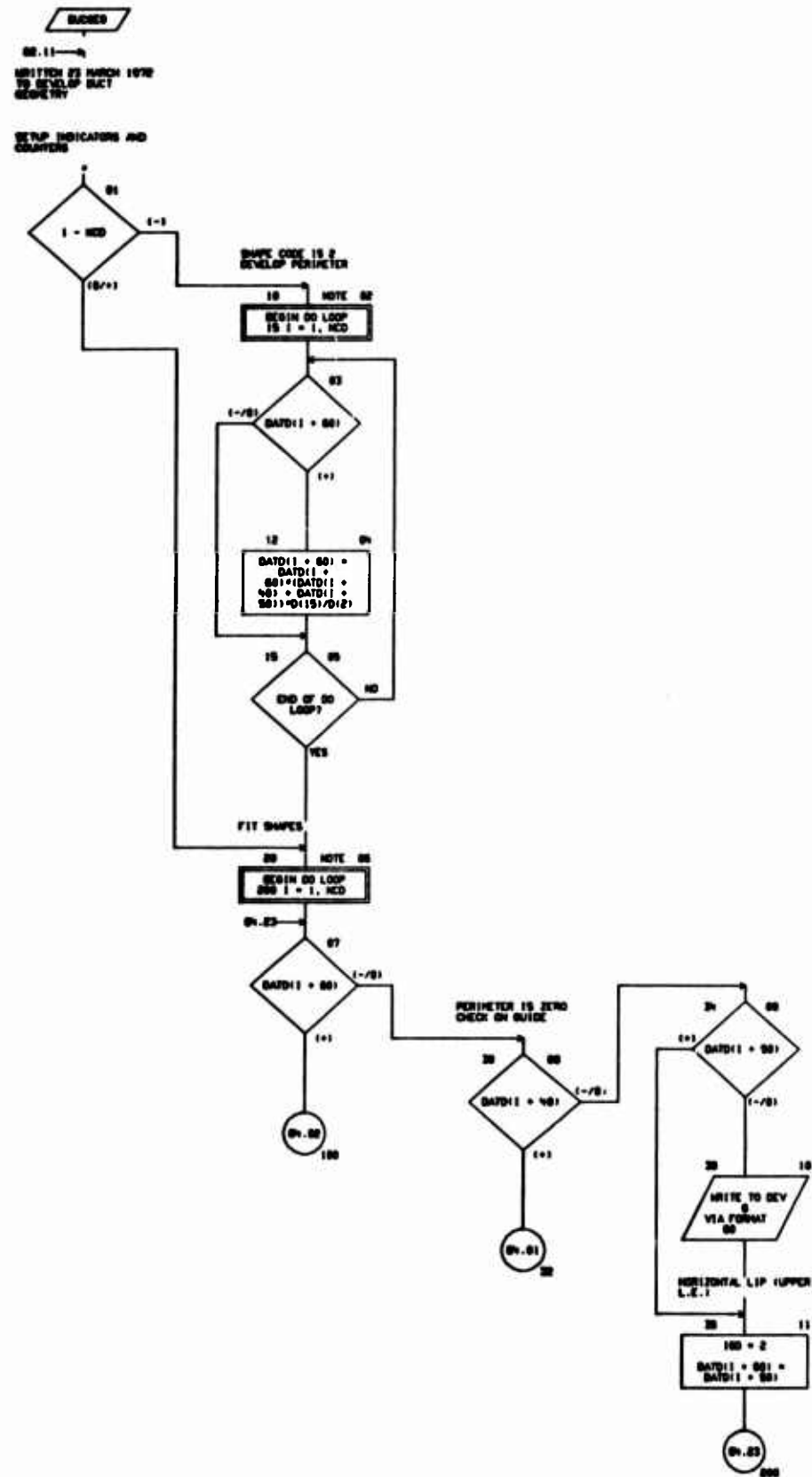
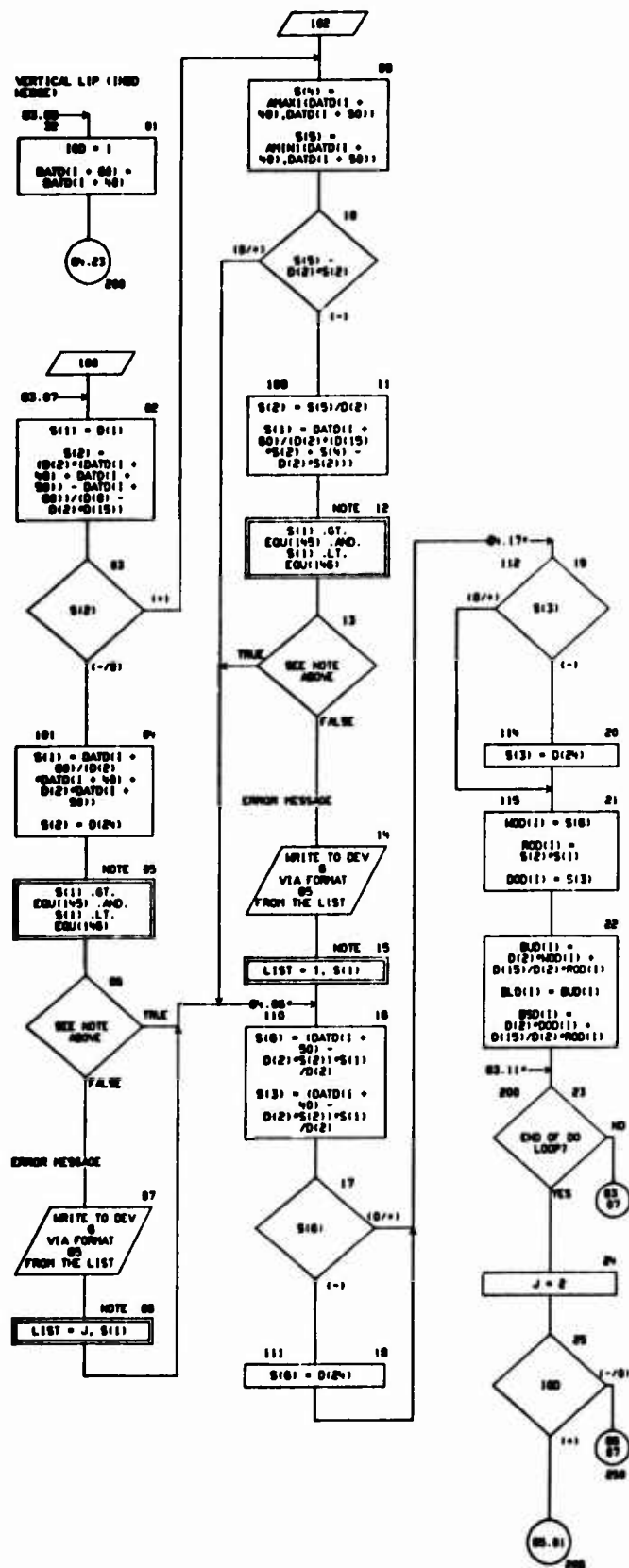


CHART TITLE - SUBROUTINE DUCED

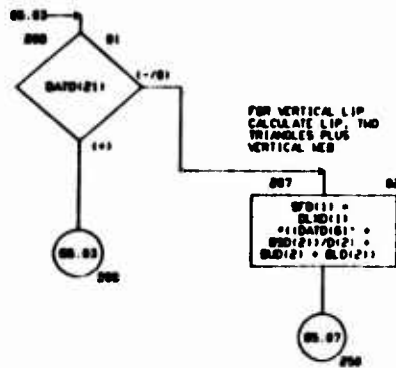


**CALCULATE LEADING
EDGE SURFACE**

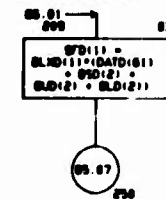


CHART TITLE - SUBROUTINE DUCED

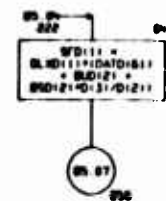
SECOND CUT IS OFFSET
THEREFORE THERE ARE
TWO INLETS PER
PARCEL



SPLIT INLET AS PER
FUELAGE RELATED



TWO INLETS PER
PARCEL



SHARP TRANSITION ONE
DUET BECOMING TWO

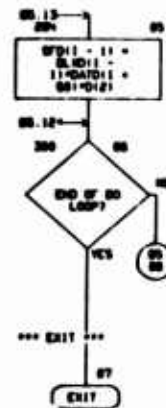


CHART TITLE - NEW-PROCEDURAL STANDARDS

[illegible]

01/05/74

ATMOSPHERIC CHART SET - SHEEP

DATA MANAGEMENT MODULE

PAGE 00

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBMIT THE DATA
.....

CHART TITLE - SUBROUTINE 000000

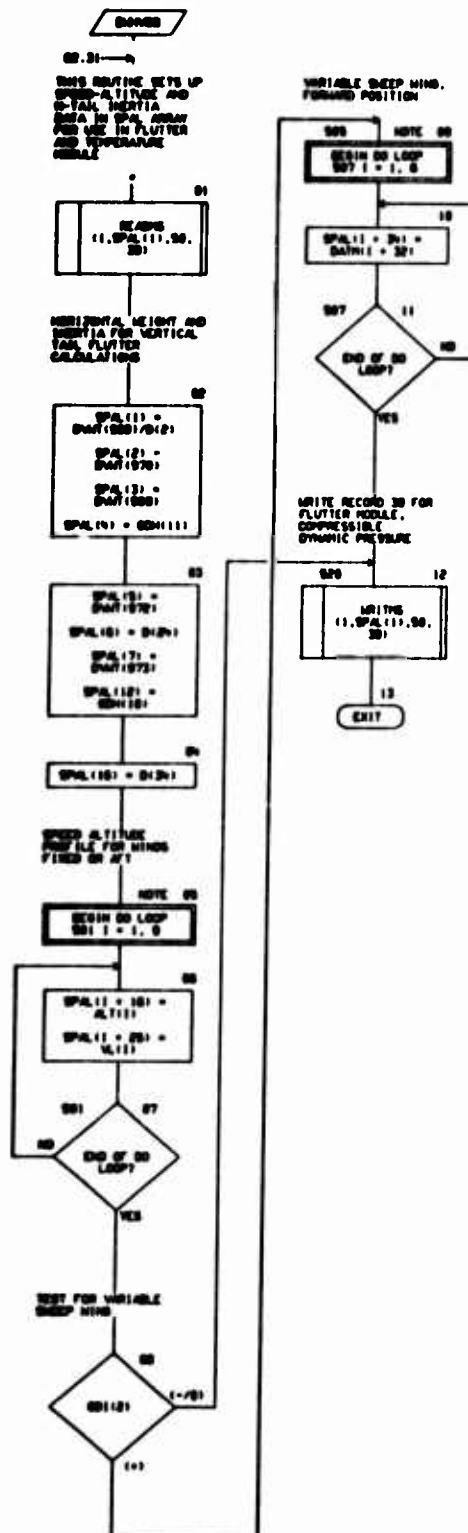


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4200)
DIMENSION SD(700),SD(700),DV(220),S(400),ND(200)
DIMENSION SPAL(50)
DIMENSION SD(120),SD(40),DATH(40),ALT(10),VL(10)
DIMENSION SPAT(1000)
EQUIVALENCE (SD(1),TCON(1)),(SD(1),TCON(70)),(DV(1),TCON(401))
, (S(1),TCON(371)),(ND(1),TCON(412))
EQUIVALENCE (SPAL(1),S(1))
EQUIVALENCE (SD(1),SD(1)),(SD(1),SD(30)),(DATH(1),SD(5))
, (ALT(1),DV(1)),(VL(1),DV(7))
EQUIVALENCE (SPAT(1),DV(112))
```


01/05/74

AUTOFLON CHART SET - SHEEP DATA IMMEDIATE MESSAGE

PAGE 01

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE TOTAL
.....

CHART TITLE - SUBROUTINE FTOTAL

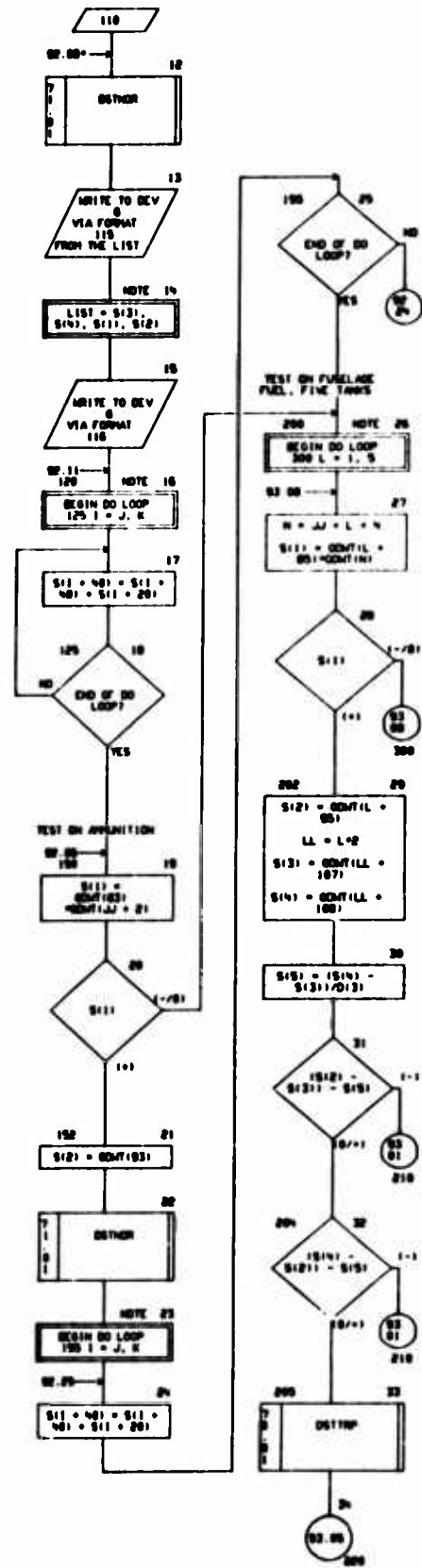
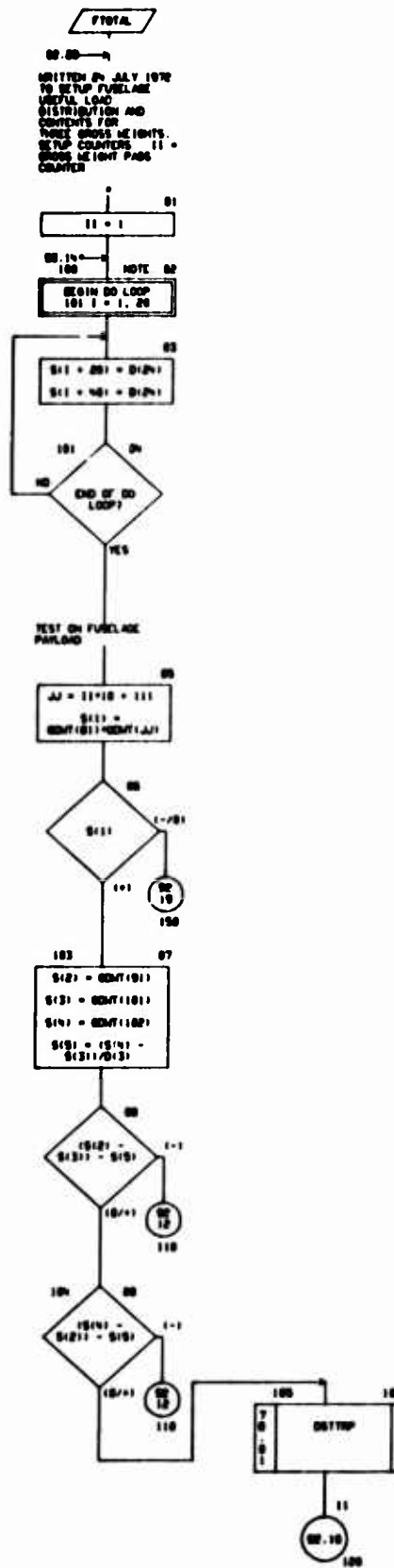


CHART TITLE - SUBROUTINE TOTAL

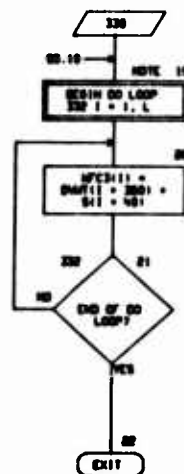
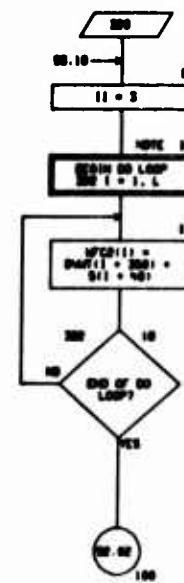
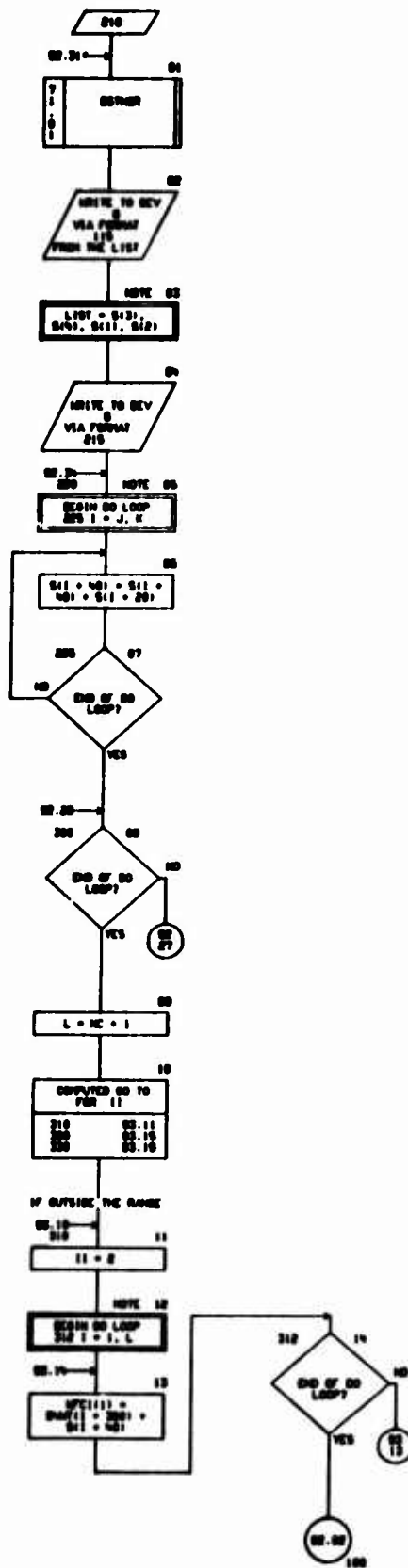


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(14320)
DIMENSION D(1700),OD(1700),DV(2320),S(1400),ND(200)
DIMENSION DMT(100)
DIMENSION DMT(1000),MFC(120),MFC2(20),MFC3(20)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(1701)),(DV(1),TCON(1401)),
(S(1),TCON(1701)),(ND(1),TCON(1421))
EQUIVALENCE (DMT(1),OD(0))
EQUIVALENCE (DMT(1),DV(1121)),(MFC(1),DMT(701)),
(MFC2(1),DMT(001)),(MFC3(1),DMT(021))
EQUIVALENCE (I,ND(101)),(J,ND(102)),(K,ND(103)),(L,ND(104)),
(N,ND(105)),(I1,ND(107)),(J1,ND(108)),(L1,ND(110))
EQUIVALENCE (INC,ND(115))
110 FORMAT(20H*** WARNING FROM TOTAL *** /
20X,33HPREVIOUS FORE AND AFT LIMITS WERE, 2F10.2/
20X,712.2,17H LBS AT FUS. STA.,70.2,10X,21HDISTRIBUTED BY D5THOR)
110 FORMAT(1H*,10X,10HFUSELAGE PAYLOAD )
210 FORMAT(1H*,20X,13HFUSELAGE FUEL )

```

01/08/74

AUTOFLEX CHART SET - SHEEP DATA MANAGEMENT MODULE

PAGE 05

CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE FURDST
#####

CHART TITLE - SUBROUTINE FUEDET

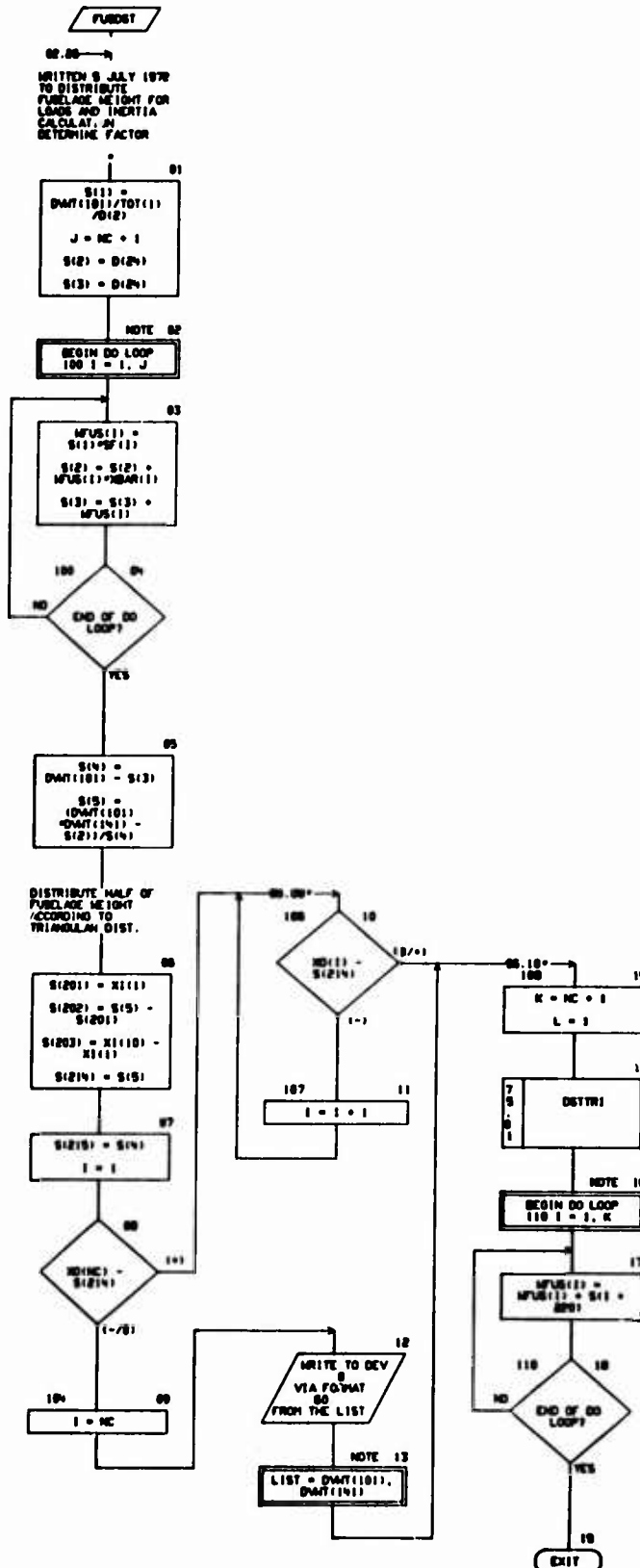


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

      COPIES TCON(4300)
      DIMENSION D(1700),GD(1700),DV(2320),S(1400),ND(700)
      DIMENSION DWT(500),MFUS(20)
      DIMENSION GDB(60),DVB(140)
      DIMENSION XI(10),ND(20),HBR(20),WF(20),TOT(20)
      EQUIVALENCE (D(1),TCON(1)),(GD(1),TCON(70)),(DV(1),TCON(140)),
        (S(1),TCON(570)),(ND(1),TCON(412))
      EQUIVALENCE (DWT(1),DV(112)),(MFUS(1),DWT(34))
      EQUIVALENCE (GDB(1),GD(30)),(DVB(1),DV(43))
      EQUIVALENCE (XI(1),GDB(6)),(ND(1),GDB(56)),(HBR(1),DVB(14)),
        (WF(1),DVB(18)),(TOT(1),DVB(36))
      EQUIVALENCE (J,ND(10)),(J,ND(102)),(K,ND(103)),(L,ND(104))
      EQUIVALENCE (MC,ND(119))
00  FORMAT(21H** FURST WARNING ** /10X,20HCHECK MT AND CO DATA,
      /10X,20HFLUCLAE MT DIST IS NOT REALISTIC,/10X,WHMT =,F10.2,
      2X,MCB =,F8.2)

```

01/05/74

AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE

PAGE 00

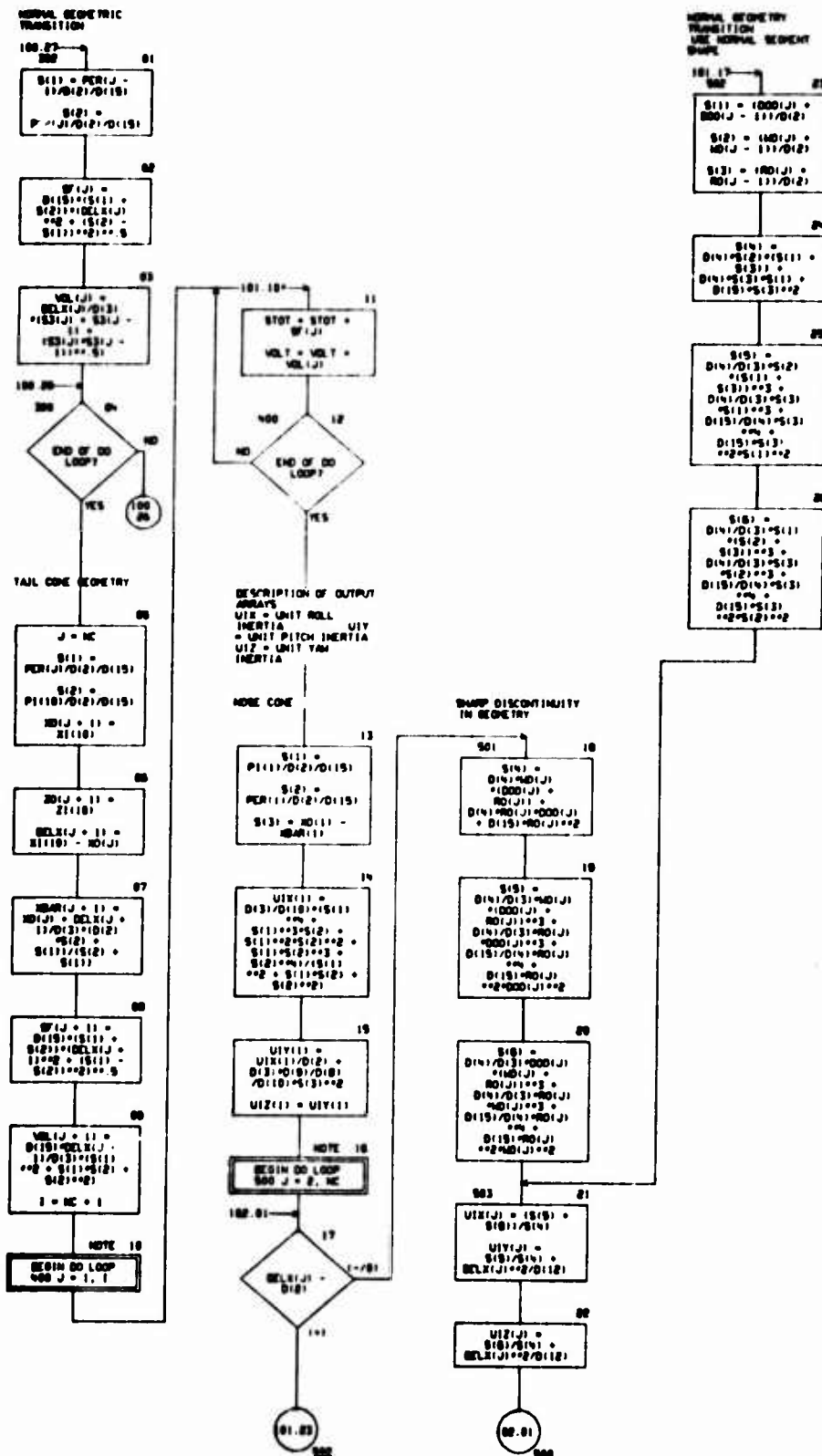
CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE FUSED
.....

CHART TITLE - SURVEILLANCE PERIOD



CHART TITLE - SUBROUTINE FURRO



CHRT TITLE - SUBROUTINE PUSSED

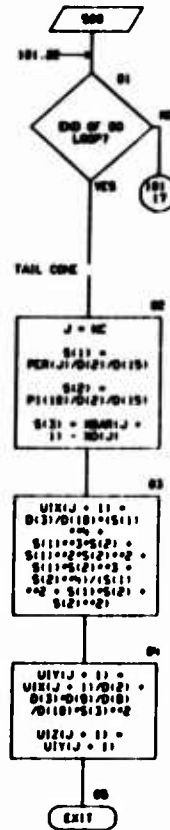


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(420)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION OOB(80),DVB(440)
DIMENSION X(10),Z(10),D(10),M(10),P(10),RO(20)
DIMENSION ZO(20),RCU(20),RCL(20),RCS(20),BU(20),BL(20),
      OS(20),HBAR(20),DELX(20),SF(20),VOL(20),DOO(20),ND(20),RO(20),
      PER(20)
DIMENSION S(20),SP(20),S3(20),TOT(20)
DIMENSION UIX(20),UIY(20),UIZ(20)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(70)),(DV(1),TCON(140)),
      (S(1),TCON(370)),(ND(1),TCON(420))
EQUIVALENCE (EQU(1),D(8))
EQUIVALENCE (OOB(1),OD(30)),(DVB(1),DV(43))
EQUIVALENCE (X(1),OOB(5)),(Z(1),OOB(16)),(D(1),OOB(26)),
      (M(1),OOB(36)),(P(1),OOB(46)),(RO(1),OOB(56))
EQUIVALENCE (ZO(1),DVB(1)),(RCU(1),DVB(21)),(RCL(1),DVB(41)),
      (RCS(1),DVB(61)),(BU(1),DVB(81)),(BL(1),DVB(101)),
      (OS(1),DVB(121)),(HBAR(1),DVB(141)),(DELX(1),DVB(161)),
      (SF(1),DVB(181)),(VOL(1),DVB(201)),(DOO(1),DVB(221)),
      (ND(1),DVB(241)),(RO(1),DVB(261)),(PER(1),DVB(281))
EQUIVALENCE (S(1),DVB(301)),(SP(1),DVB(321)),(S3(1),DVB(341)),
      (TOT(1),DVB(361))
EQUIVALENCE (UIX(1),DVB(381)),(UIY(1),DVB(401)),(UIZ(1),DVB(421))
EQUIVALENCE (TOT(1),STOT),(TOT(2),VOLT)
EQUIVALENCE (ND(115),NC),(ND(116),KC)
EQUIVALENCE (ND(101),I),(ND(102),J)
01 FORMAT (30-CHARACTERS FROM FUSED IN DATA MANAGEMENT )
05 FORMAT ( 24 SECTION, 113, 324 IS RECTANGULAR, CORR FACTOR IS,FB 3)
06 FORMAT ( 24 SECTION,113, 344 IS ROUNDED RECT , CORR FACTOR IS,FB 3)

```

01/08/74

AUTOFLEX COURT SET - SHEEP DATA MANAGEMENT MODULE

PAGE 104

CURT TITLE - INTRODUCTORY COMMENTS

.....
SUBMIT THE MAPS
.....

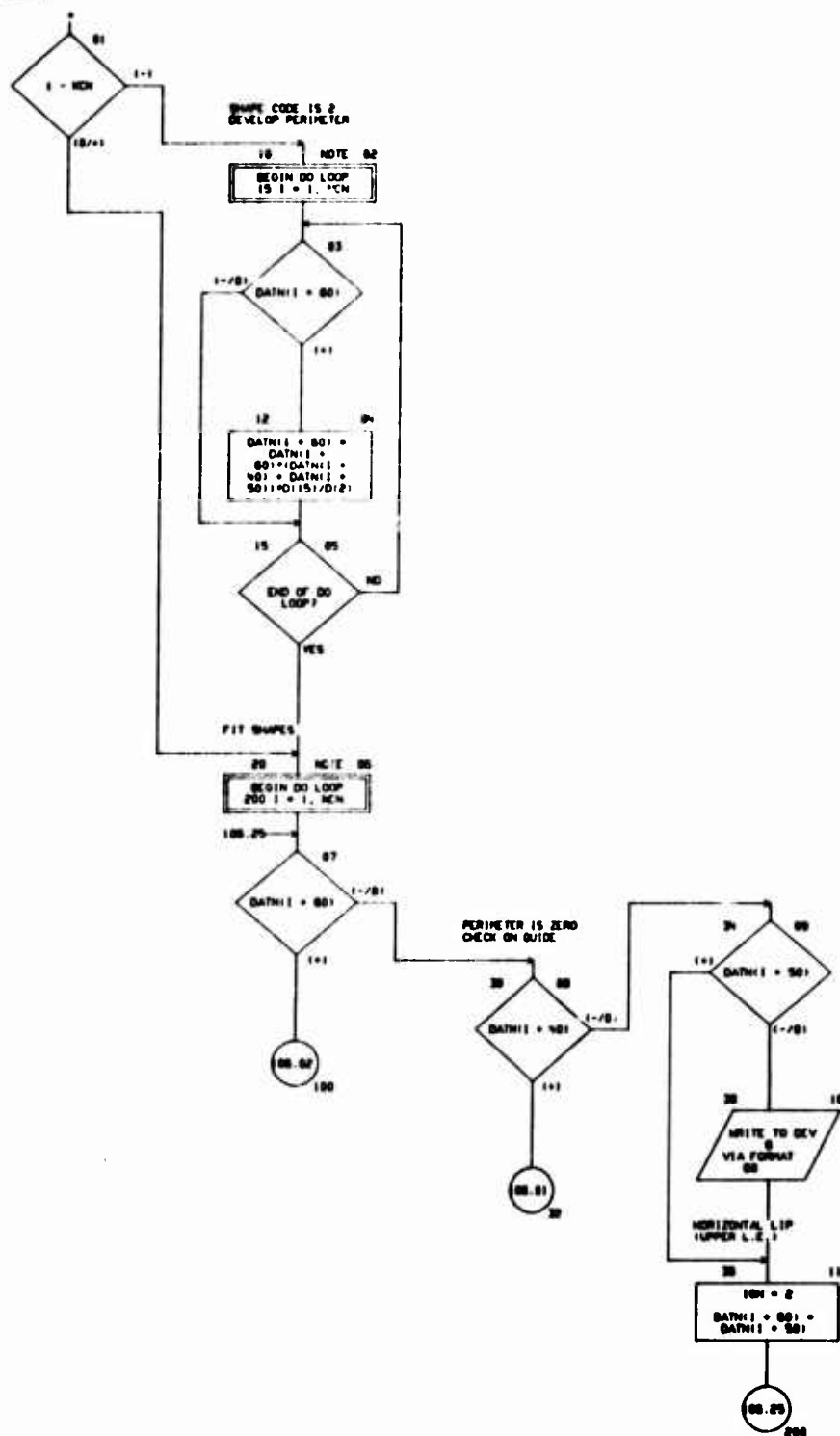
CHART TITLE - SUBROUTINE MACED0

MACED0

00.19 →

WRITTEN 8 APRIL 1974
TO DEVELOP MACELLE
GEOMETRY

SETUP INDICATORS AND
COUNTERS



691

CHART TITLE - SUBROUTINE NAC80

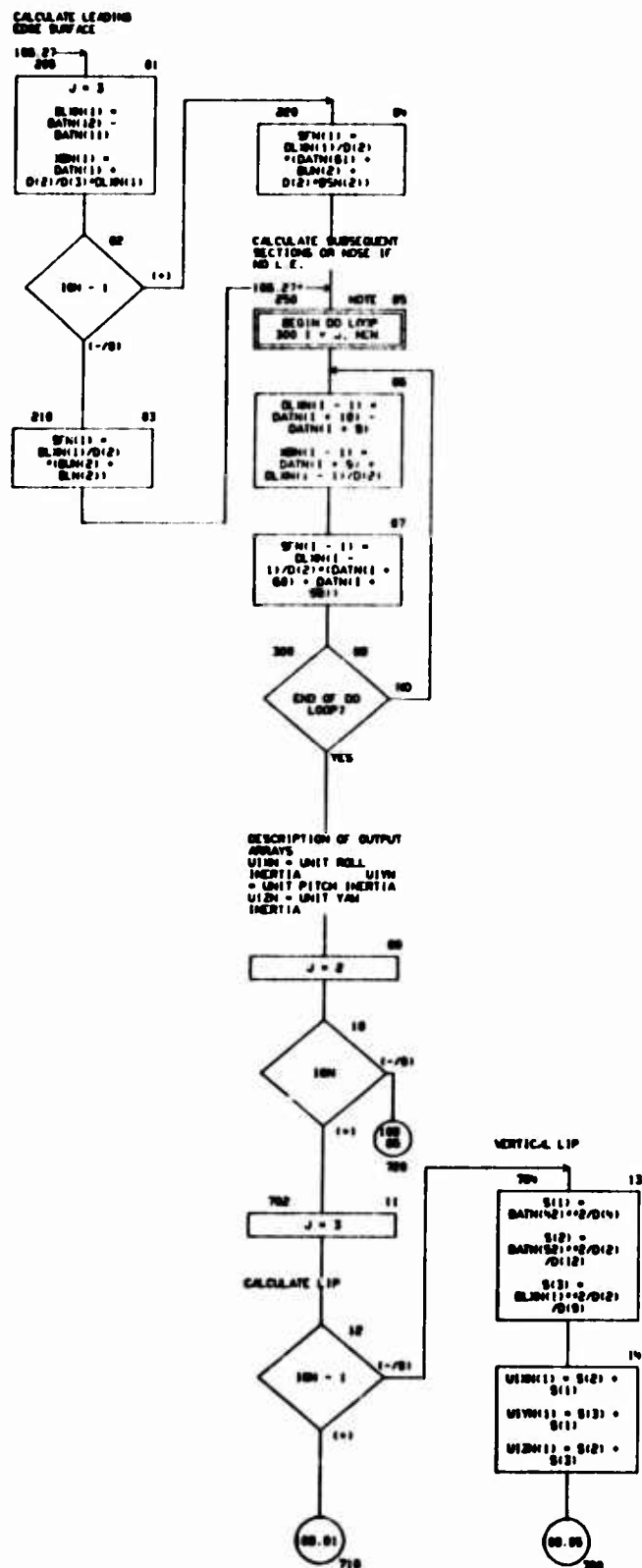


CHART TITLE - SUBROUTINE HACHED

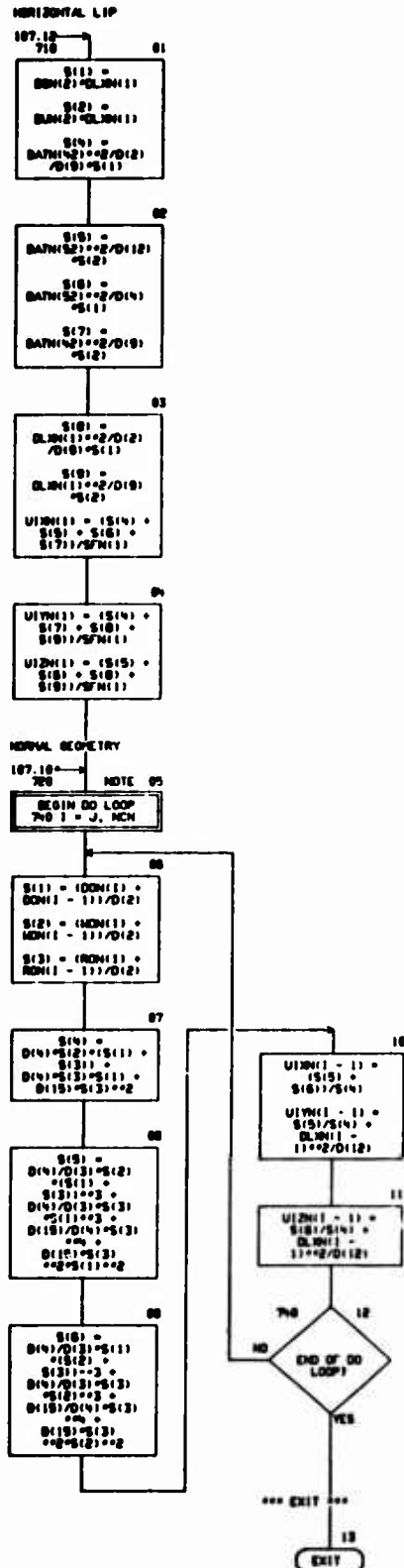


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(1320)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION DATN(70)
DIMENSION DWN(150)
DIMENSION EQU(200)
DIMENSION MDN(10),RCN(10),DCN(10),BLN(10),BLN(10),BSN(10),
      BLN(10),SFN(10),RCUN(10),RCLN(10),RCSN(10),XBN(10)
DIMENSION U1N(10),U1YN(10),U1ZN(10)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401)),
      (S(1),TCON(1321)),(ND(1),TCON(121))
EQUIVALENCE (EQU(1),D(81))
EQUIVALENCE (DATN(1),OD(981))
EQUIVALENCE (DWN(1),DV(871))
EQUIVALENCE (MDN(1),DWN(1)),(RCN(1),DWN(11)),(DCN(1),DWN(21)),
      (BLN(1),DWN(31)),(BLN(1),DWN(41)),(BSN(1),DWN(51)),
      (BLN(1),DWN(61)),(SFN(1),DWN(71)),(RCLN(1),DWN(81)),
      (RCLN(1),DWN(91)),(RCSN(1),DWN(101)),(XBN(1),DWN(111))
EQUIVALENCE (U1N(1),DWN(121)),(U1YN(1),DWN(131)),
      (U1ZN(1),DWN(141))
EQUIVALENCE (ND(101),1),(ND(102),J)
EQUIVALENCE (NDN,ND(110)),(RCN,ND(120)),(DCN,ND(121))
00  FORMAT (40H WARNING FROM NACGO IN DATA MANAGEMENT,10X,
      20H NACELLE LIP GEOMETRY ERROR)
05  FORMAT (40H WARNING FROM NACGO IN DATA MANAGEMENT /SH SECTION,
      113,47H IS RECTANGLE OR ROUNDED RECT., CORR. FACTOR IS, (F6.3)

```

01/08/74

AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE

PAGE 110

CHART TITLE - INTRODUCTORY COMMENTS

))
SUBROUTINE N00000
))

CHART TITLE - SUBROUTINE NODGEO

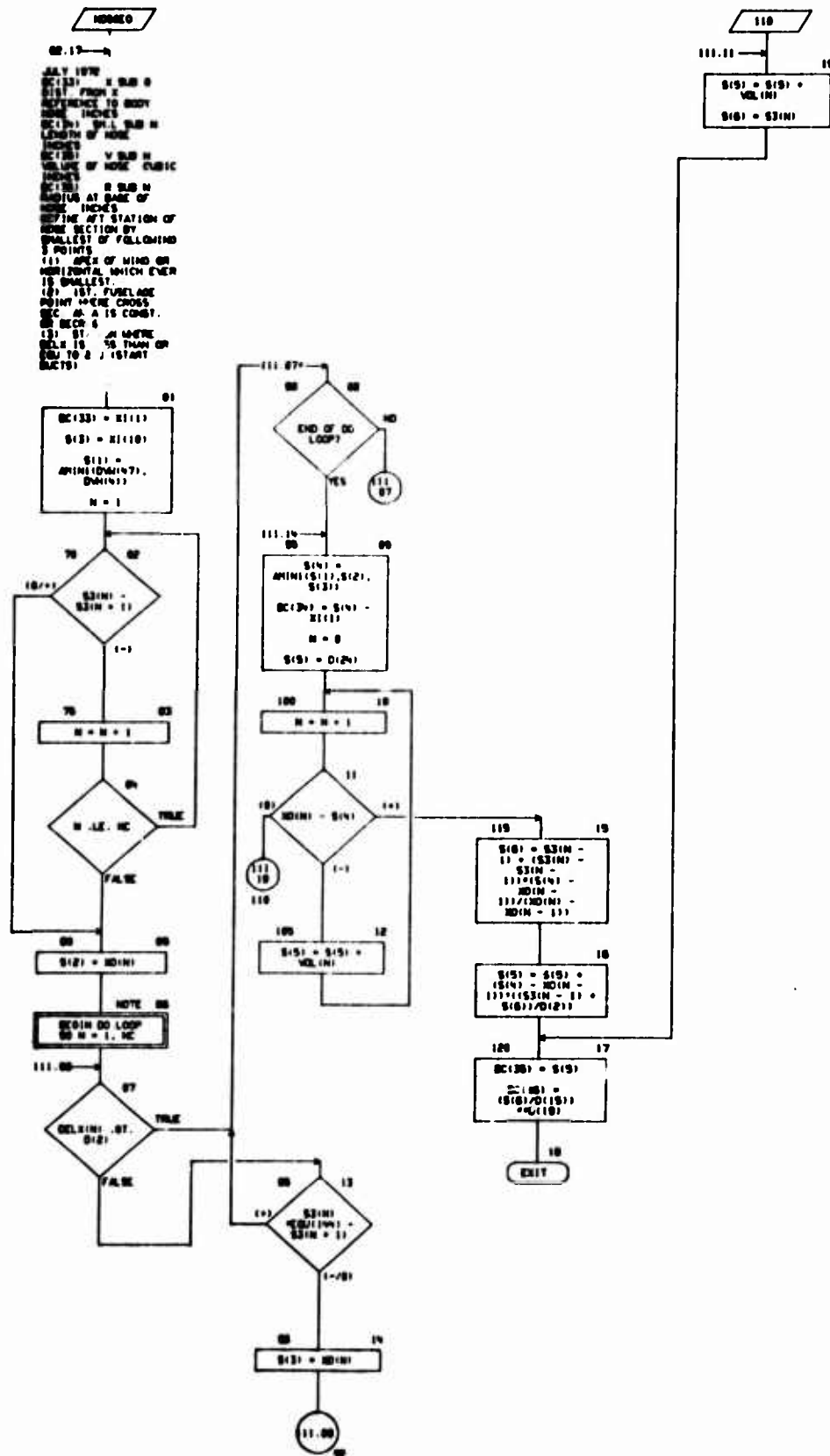


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCOM(420)
DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
, GDD(80), DVB(440), BC(200), DVA(50), DVB(30)
, DELX(80), VOL(20), SS(20), ND(20), XI(10), EQU(200)
EQUIVALENCE (TCOM(1),D(1)), (TCOM(70),GD(1)), (TCOM(140),DV(1))
, (TCOM(210),S(1)), (TCOM(280),ND(1))
, (DV(32),DVA(1)), (DV(37),DVA(1)), (DV(43),DVB(1))
, (DVB(10),DELX(1)), (DVB(20),VOL(1)), (DVB(34),SS(1))
, (GD(30),GDD(1)), (GD(6),XI(1)), (GD(56),ND(1))
, (ND(119),NC)
, (DV(212),BC(1)), (EQU(1),D(0))
```

01/05/74

AUTOFLOW CHART SET - SHEEP

DATA MANAGEMENT MODULE

PAGE 113

CHART TITLE - INTRODUCTORY COMMENTS

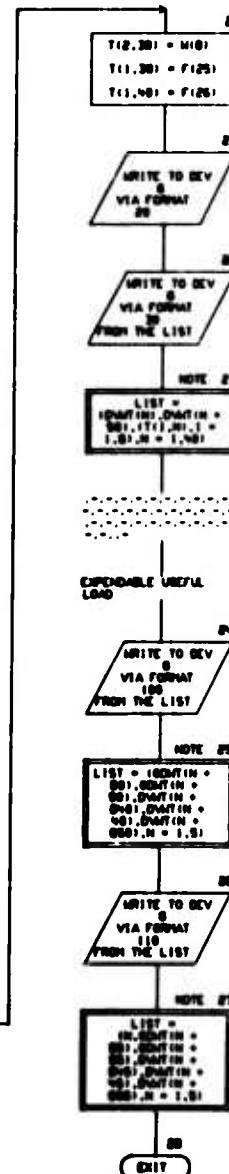
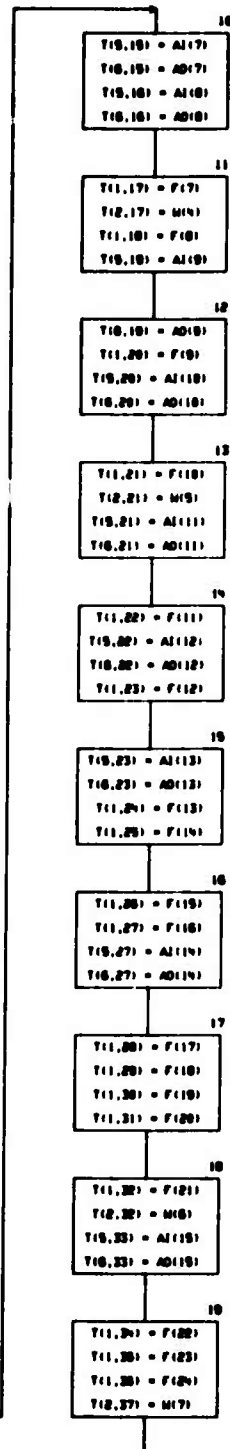
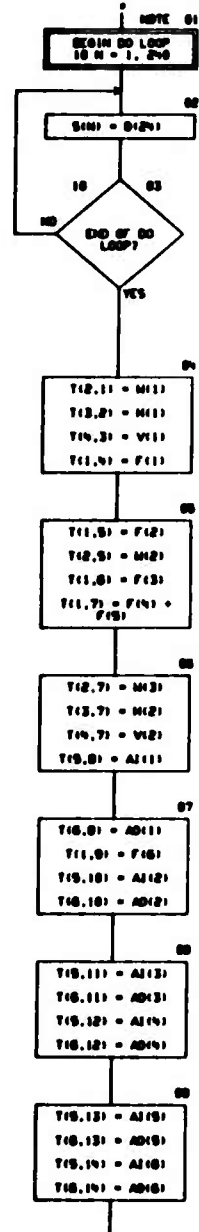
SUBROUTINE PRIME
#####

PRINTING

02-22-74

WRITTEN SEPT. 1972
OPERATING INSTRUCTIONS
COPY AND EXPOSE
USEFUL
LEAD PRINT SUBROUTINE

PRINT BREAK DOWN FROM
TIL-11 WARE
1-COMPONENT, JALINE
ED.



[illegible]

01/08/74

AUTOFLEX CHART SET - DEEP

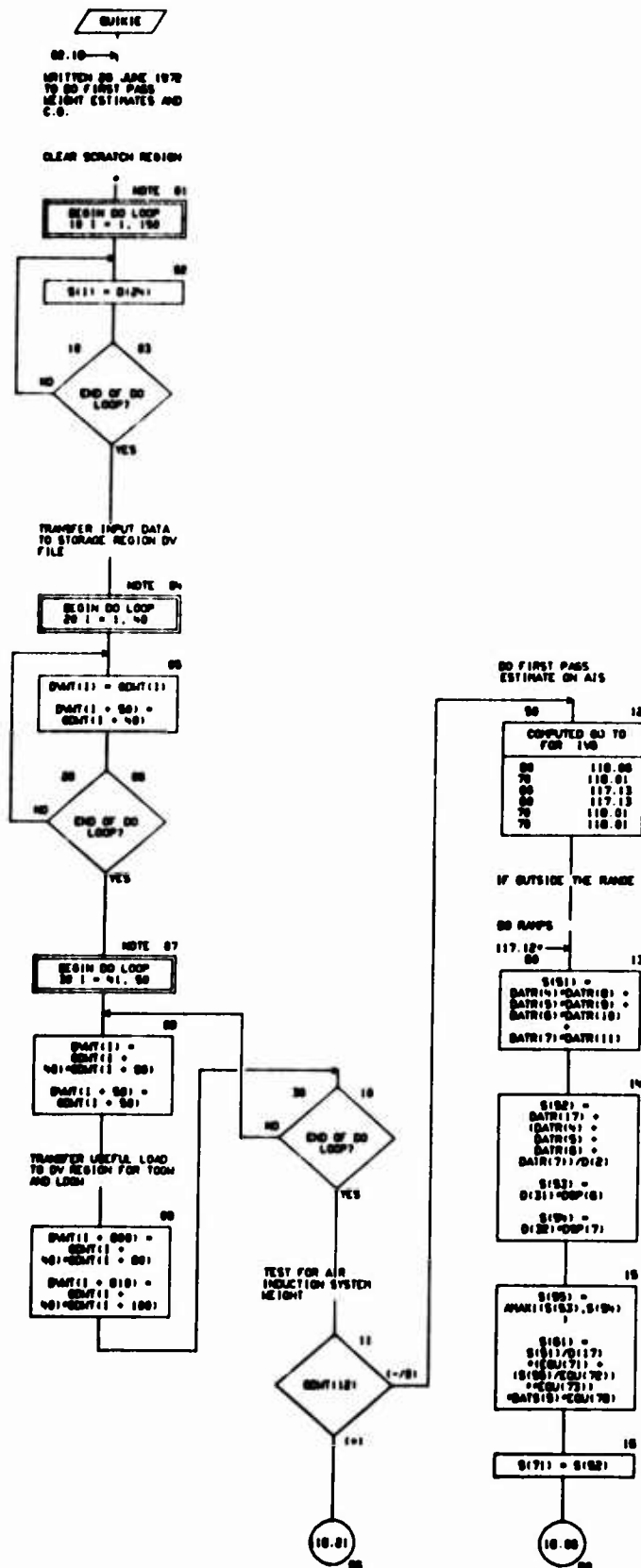
DATA MANAGEMENT MODULE

PAGE 116

CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE GUIDE
.....

CHART TITLE - SUBROUTINE OUTLINE



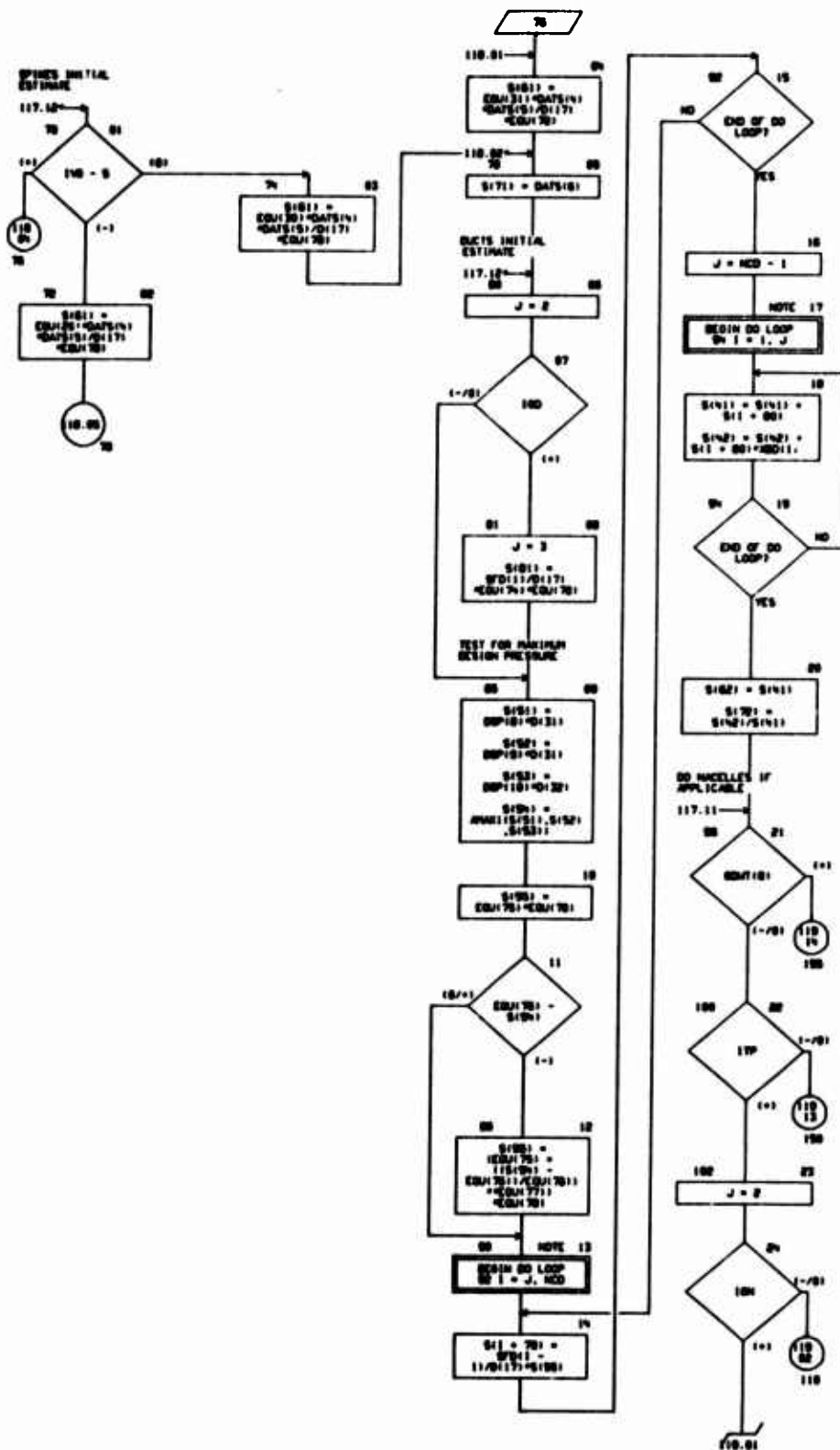


CHART TITLE - SUBROUTINE QUINIE

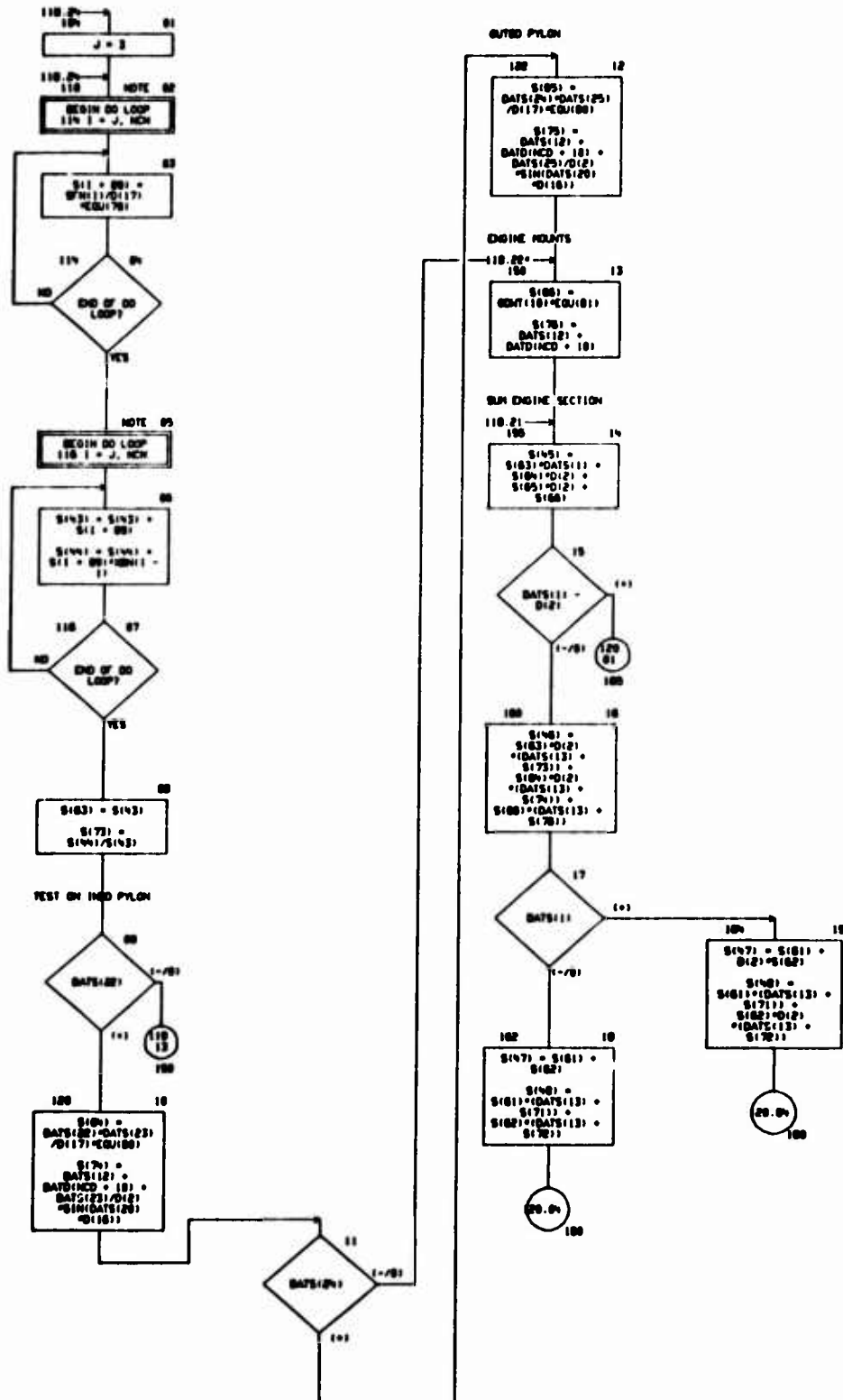


CHART TITLE - SUBROUTINE QUIKIE

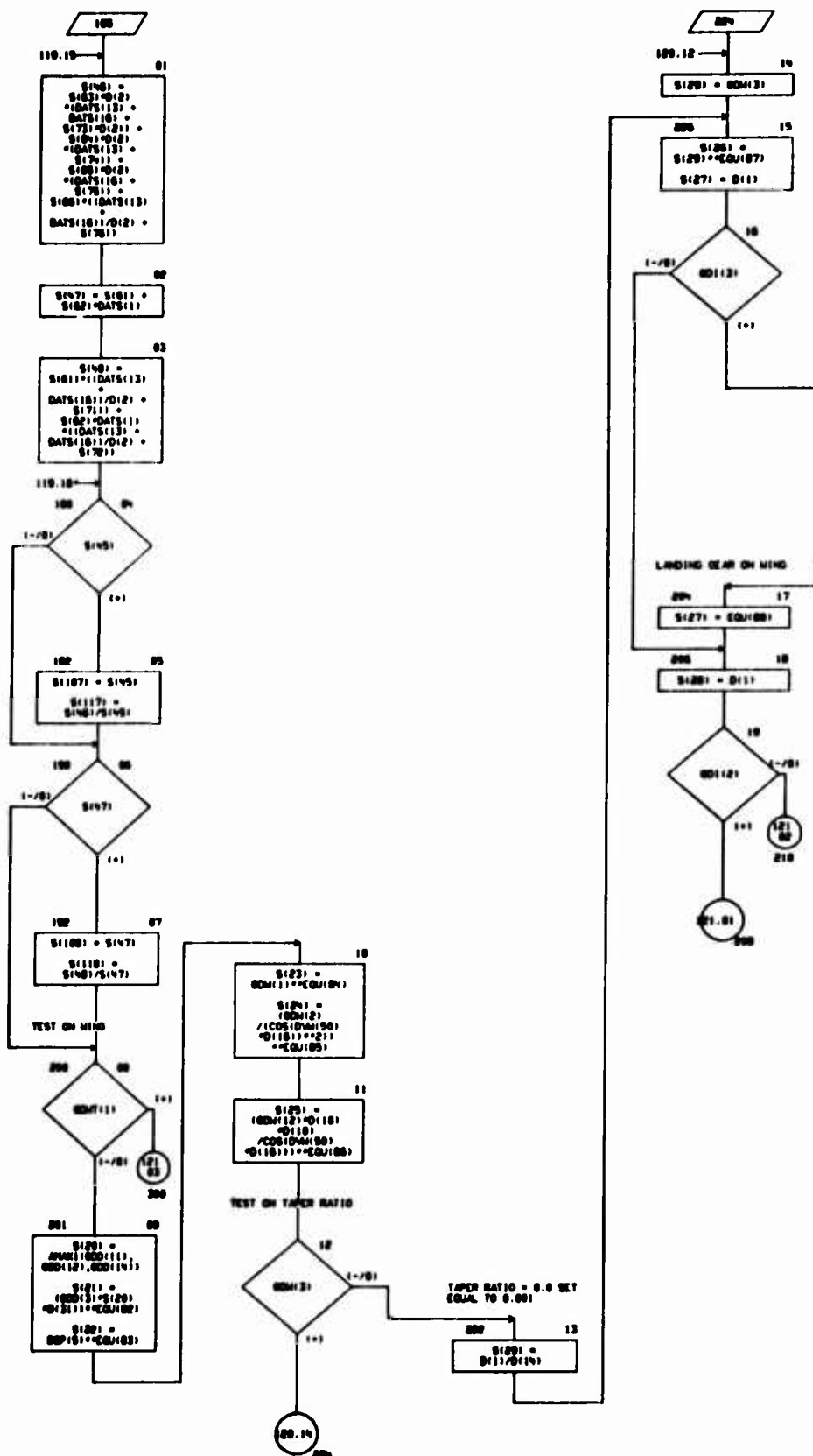


CHART TITLE - SUBROUTINE QWIKIE

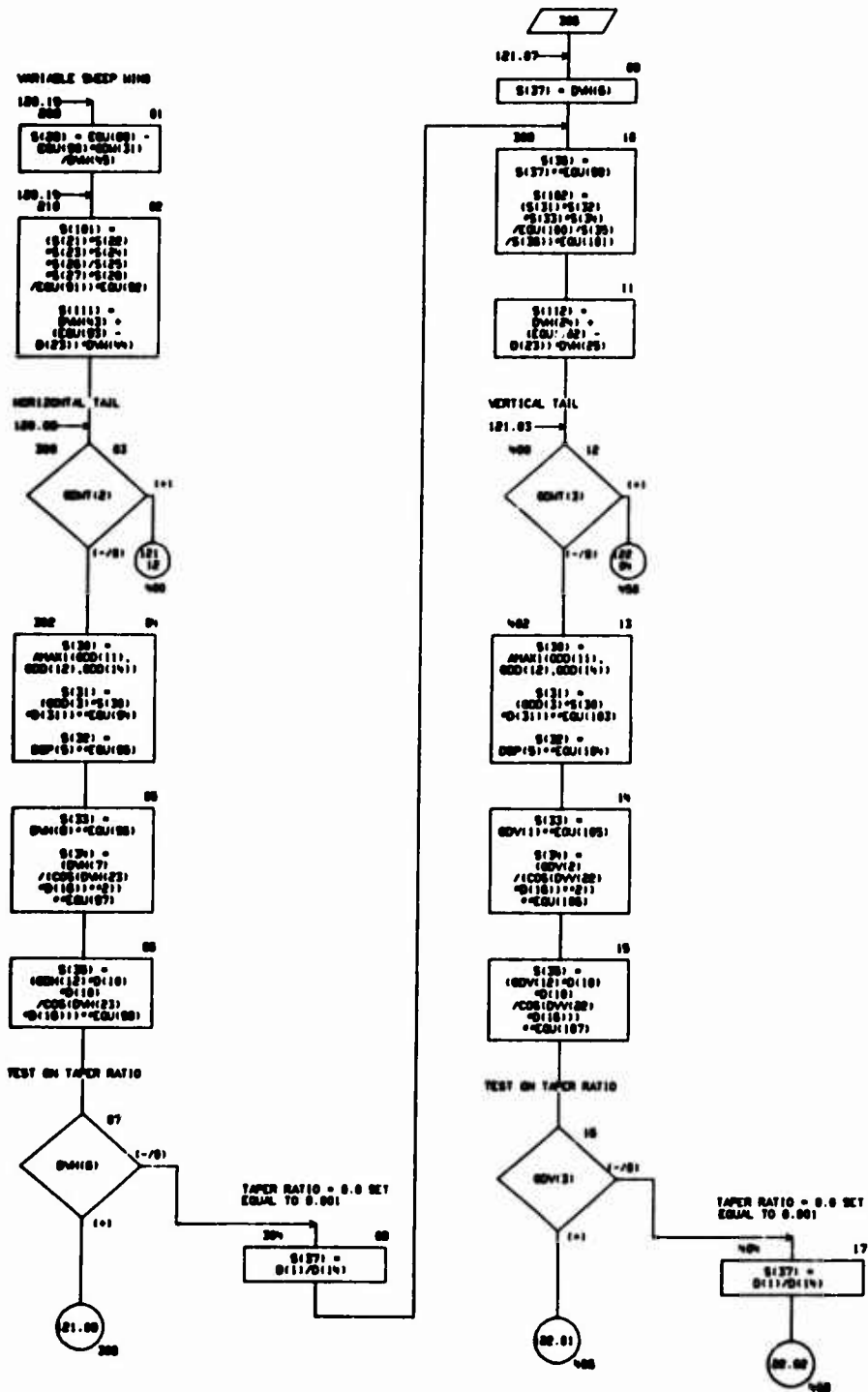


CHART TITLE - SUBROUTINE QUIKIE

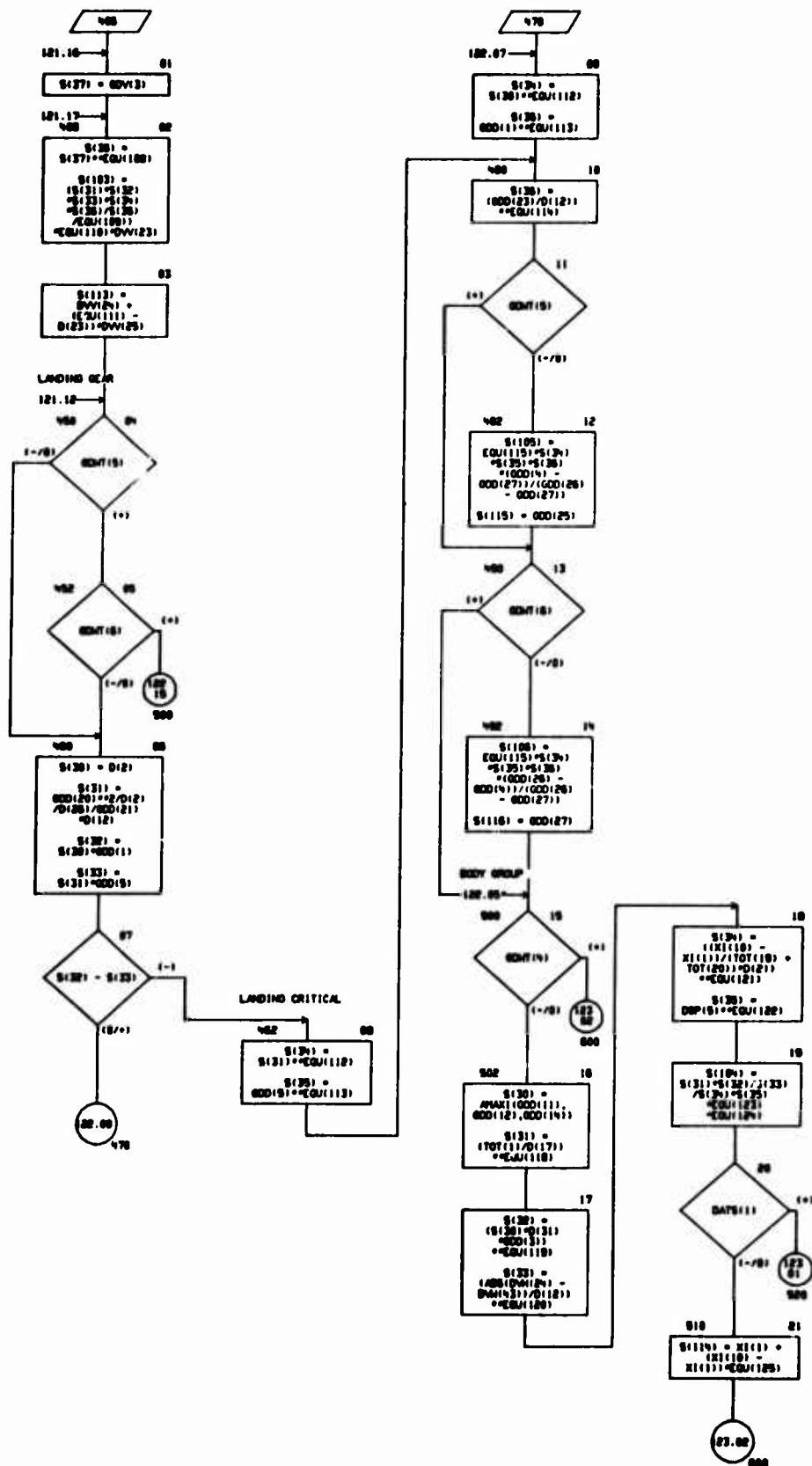
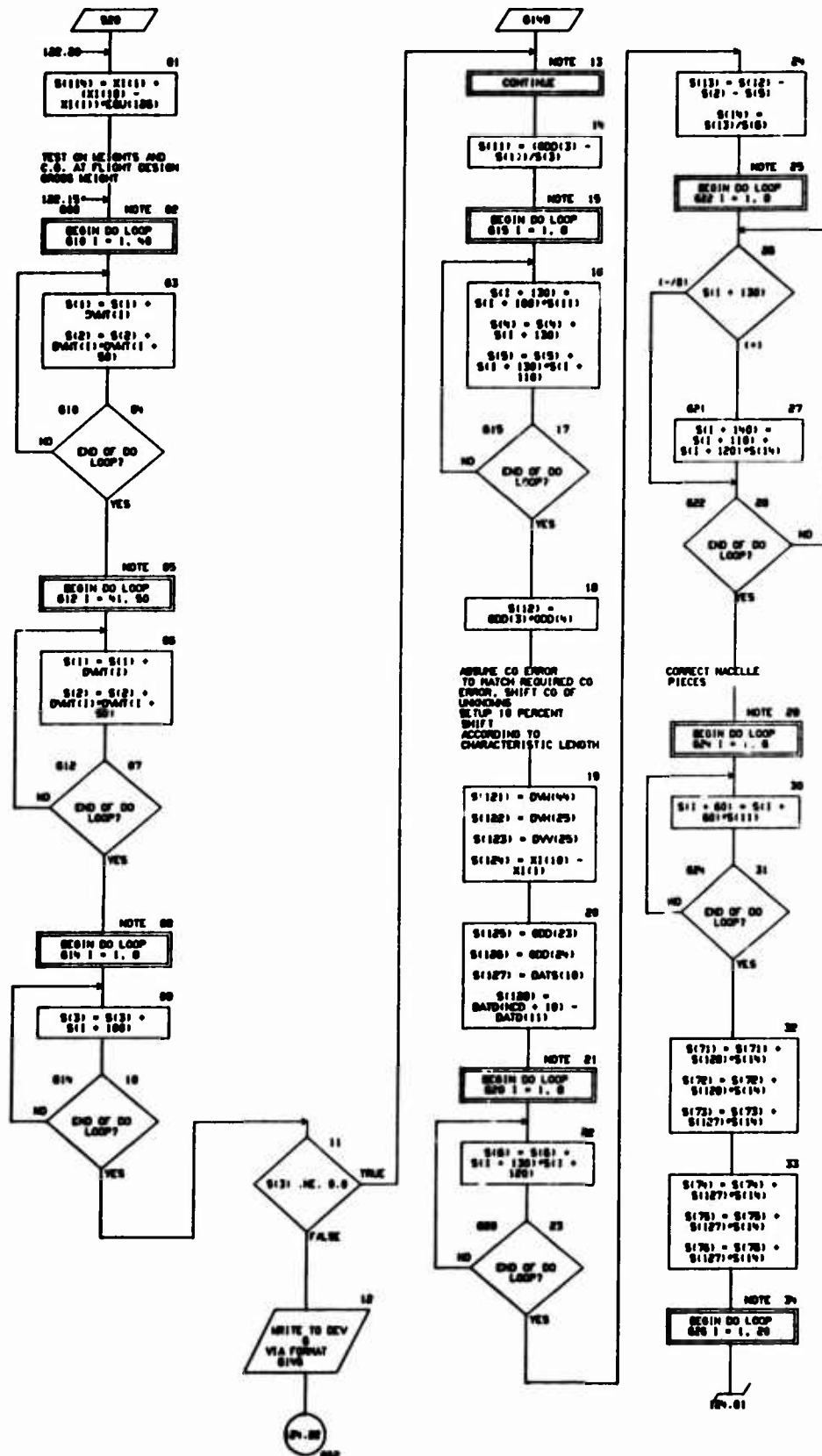


CHART TITLE - SUBROUTINE QUIKIE



709

CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4320)
COMMON /IPRINT/ (P(00)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION OD(120),OOD(30),ODMT(100),ODH(50),ODH(40),ODV(40),
      ODB(00),ODS(40),ODD(70),ODR(20),ODN(70)
DIMENSION DWH(50),DWH(30),DVI(30),DVB(440),DVO(100),DWH(150),
      DWT(1000)
DIMENSION DSP(10)
DIMENSION XI(10)
DIMENSION TOT(20),XOD(10),SFO(10),XOH(10),SFI(10)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401)),
      (S(1),TCON(2701)),(ND(1),TCON(4121))
EQUIVALENCE (EQU(1),D(01))
EQUIVALENCE (OD(1),OD(1)),(OOD(1),OOD(2)),(ODMT(1),OD(01)),
      (ODH(1),OD(251)),(ODH(1),OD(301)),(ODV(1),OD(341)),
      (ODB(1),OD(381)),(ODS(1),OD(461)),(ODD(1),OD(501)),
      (ODR(1),OD(571)),(ODN(1),OD(581))
EQUIVALENCE (XI(1),OD(06))
EQUIVALENCE (DWH(1),DV(321)),(DWH(1),DV(371)),(DV(1),DV(401)),
      (DVB(1),DV(431)),(DVO(1),DV(071)),(DWH(1),DV(071)),
      (DWT(1),DV(1121))
EQUIVALENCE (DSP(1),DV(311))
EQUIVALENCE (TOT(1),DVB(381)),(SFO(1),DVO(71)),
      (XOD(1),DVO(01)),(SFI(1),DWH(71)),(XOH(1),DWH(111))
EQUIVALENCE (1,ND(101)),(J,ND(102))
EQUIVALENCE (11,ND(107))
EQUIVALENCE (1TP,ND(111)),(1VO,ND(112)),(1OD,ND(114)),
      (1NC,ND(115)),(1ED,ND(117)),(1CH,ND(119)),(1ON,ND(121))
0145 FORMAT(/// 62ND***** ALL DETAIL HEIGHTS AND C.G.S WERE INPUT
      ***** ///)
1020 FORMAT(1H1,20X,52STRUCTURE HEIGHT DATA FROM QUIKIE IN DATA MANAGE
      MENT//32X,10HINITIAL ESTIMATE,4X,14HCHARACTERISTIC,0X,
      10HCONNECTED ESTIMATE/30X,04HEIGHT,5X,04HORIZ ARM,6X,04LENGTH,
      12X,04HEIGHT,5X,04HORIZ ARM)
1021 FORMAT(0X,4H1ND,11X,2F12.1,4X,F12.1,4X,2F12.1/
      0X,10HORIZONTAL TAIL,2F12.1,4X,F12.1,4X,2F12.1/
      0X,10HVERTICAL TAIL,2X,2F12.1,4X,F12.1,4X,2F12.1/
      0X,04FUSELAGE,7X,2F12.1,4X,F12.1,4X,2F12.1/
      0X,04MAIN GEAR,6X,2F12.1,4X,F12.1,4X,2F12.1/
      0X,04NOSE GEAR,6X,2F12.1,4X,F12.1,4X,2F12.1/
      0X,14HENGINE SECTION,1X,2F12.1,4X,F12.1,4X,2F12.1/
      0X,15HMAIN MD. SYSTEM,2F12.1,4X,F12.1,4X,2F12.1)
1000 FORMAT(1H1,32X,11H 5-REGION,45X,21H** QUIKIE - (P(44) **)
1002 FORMAT(4X,14,SF10.4)

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01/00/74

AUTOFLW CHART SET - SHEEP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE SPDLT
#####

CHART TITLE - SUBROUTINE SPBAL7

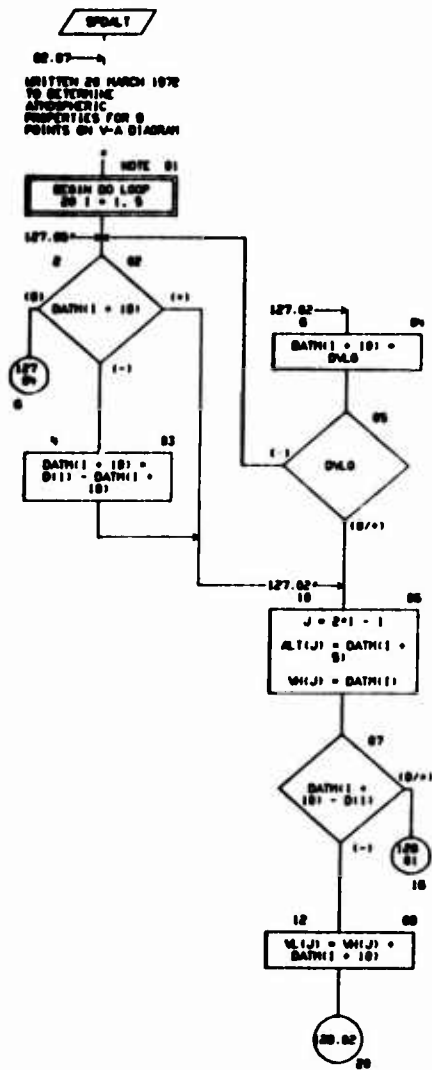


CHART TITLE - SUBROUTINE SPDLT

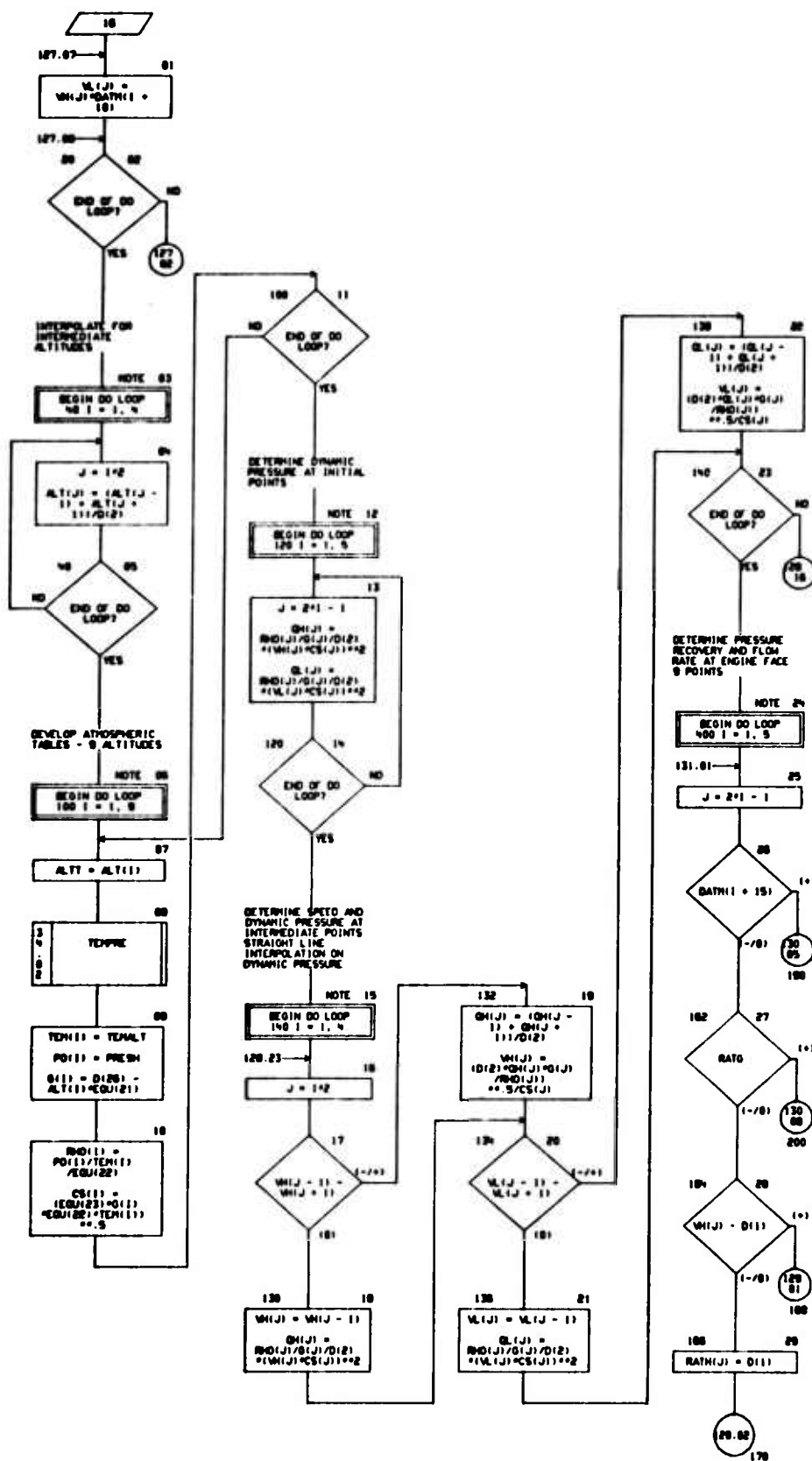


CHART TITLE - SUBROUTINE SPBAL7

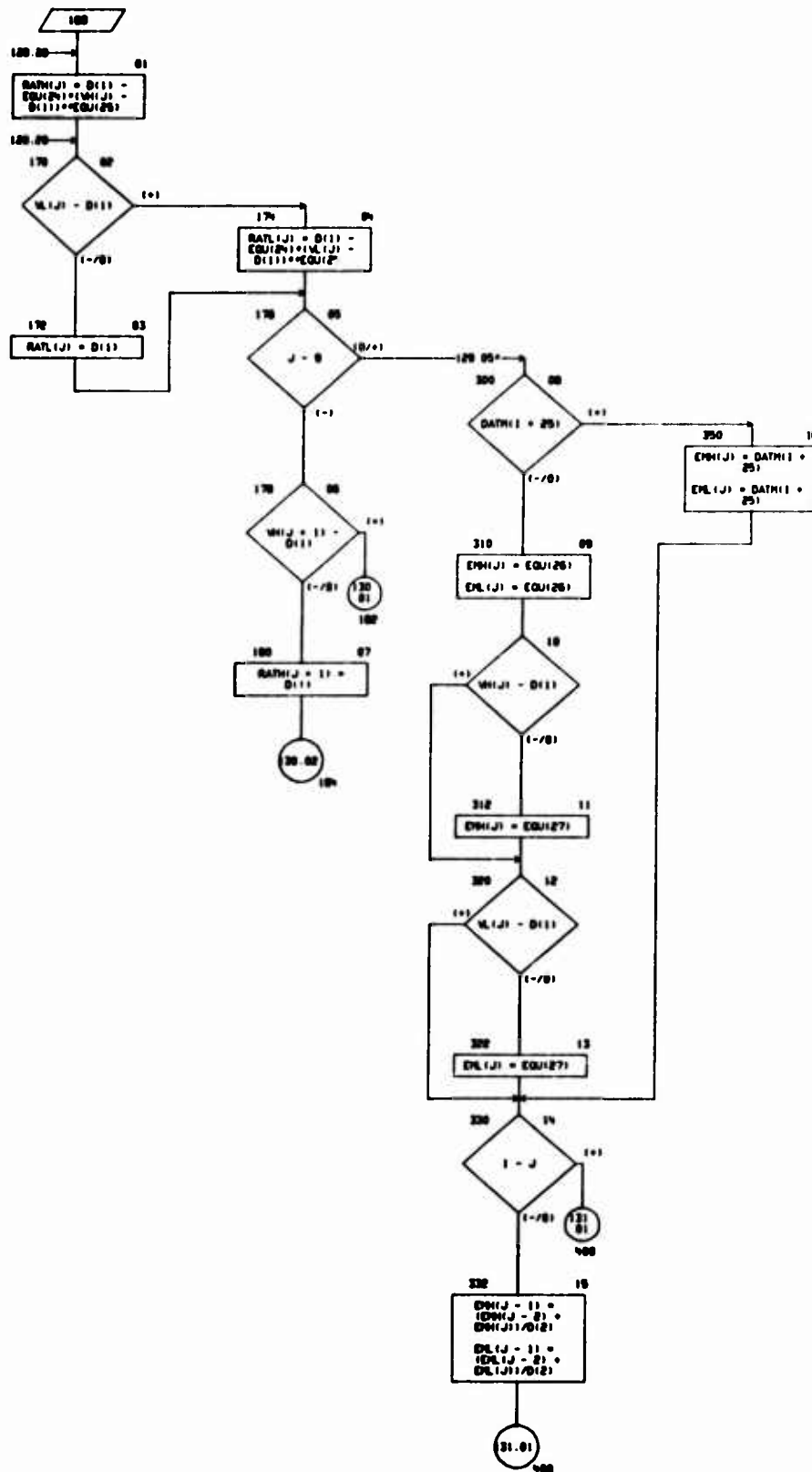


CHART TITLE - SUBROUTINE SPDAL7

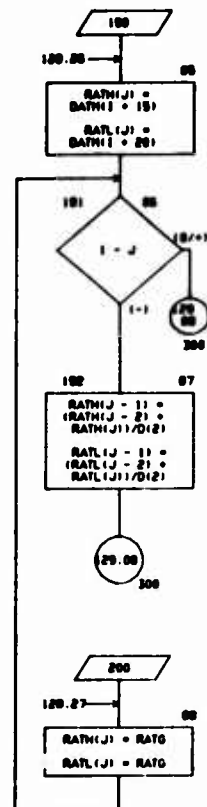
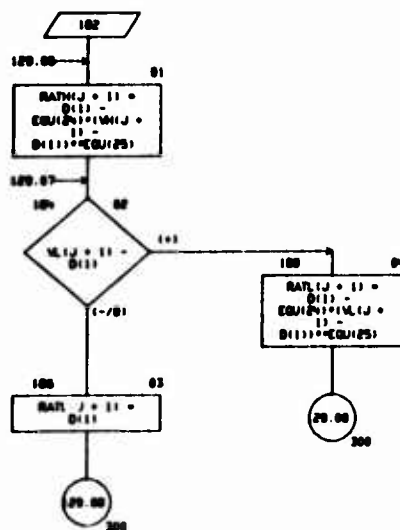


CHART TITLE - SUBROUTINE SPDA1

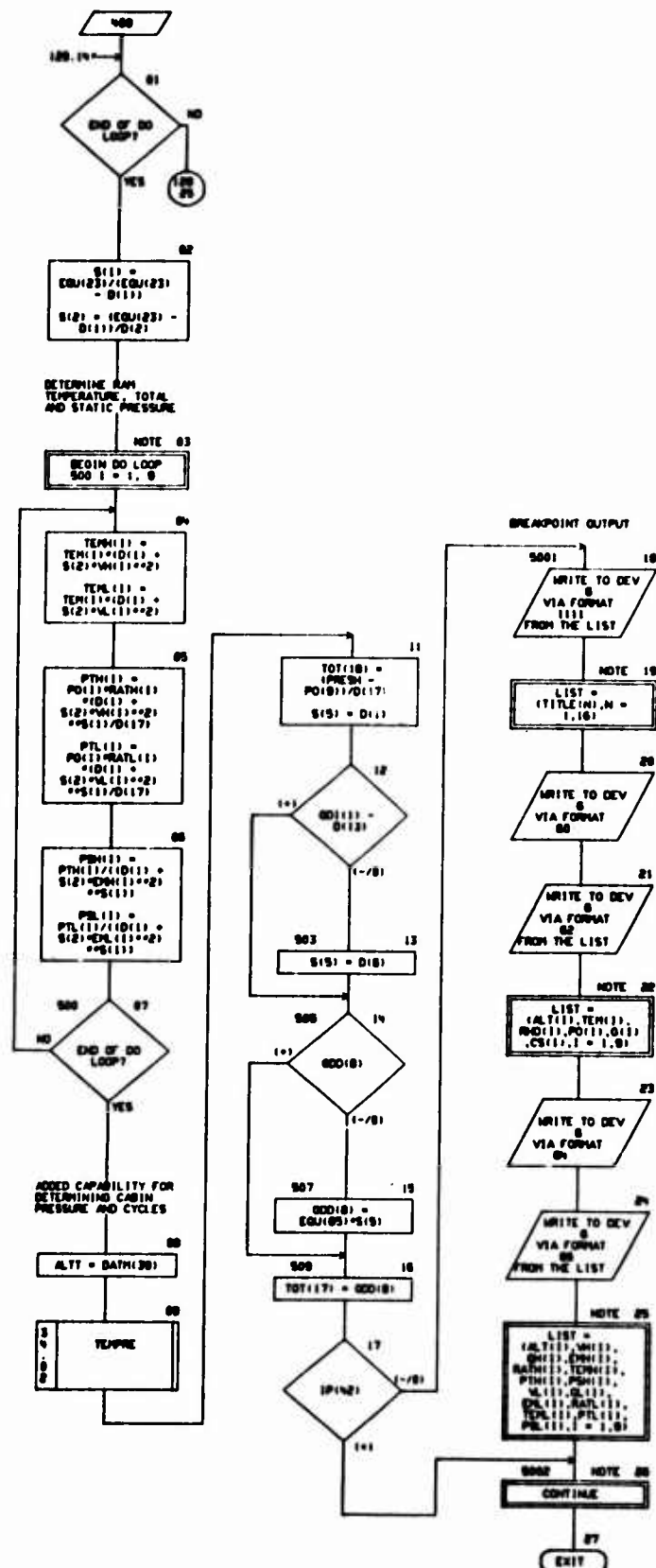


CHART TITLE - NON-PROCEDURAL STATEMENTS

```

COMMON TCON(4320)
COMMON /IPRINT/ IP(80)
COMMON /MISC/ MISC(100)
DIMENSION D(700),OD(700),DV(720),S(400),ND(200)
DIMENSION OD(120),ODD(30)
DIMENSION DATH(40)
DIMENSION EQU(200)
DIMENSION TITLE(10)
DIMENSION ALT(10),TCM(10),PO(10),G(10),CS(10),RD(10)
DIMENSION WH(10),VL(10),QH(10),QL(10),CH(10),CL(10),
BATH(10),RATL(10),TEPH(10),TECL(10),PTH(10),PTL(10),PSH(10),
PBL(10)
DIMENSION DVB(40),TOT(20)
EQUIVALENCE (D(1),TCM(1)),(OD(1),TCM(701)),(DV(1),TCM(1401)),
(S(1),TCM(3701)),(ND(1),TCM(4121))
EQUIVALENCE (D(0),EQU(1))
EQUIVALENCE (OD(1),OD(1)),(OD(1),OD(21))
EQUIVALENCE (DATH(1),OD(5))
EQUIVALENCE (DATH(3),DVB(1),DATH(32),RATD)
EQUIVALENCE (TITLE(1),MISC(05))
EQUIVALENCE (S(1),TEMP(1),S(2),PRES(1),S(4),ALT)
EQUIVALENCE (ALT(1),DV(1)),(TCM(1),DV(11)),(PO(1),DV(21)),
(G(1),DV(31)),(CS(1),DV(41)),(RD(1),DV(51))
EQUIVALENCE (WH(1),DV(61)),(VL(1),DV(71)),(QH(1),DV(81)),
(QL(1),DV(91)),(CH(1),DV(101)),(CL(1),DV(111)),
(BATH(1),DV(121)),(RATL(1),DV(131)),(TEPH(1),DV(141)),
(TECL(1),DV(151)),(PTH(1),DV(161)),(PTL(1),DV(171)),
(PSH(1),DV(181)),(PBL(1),DV(191))
EQUIVALENCE (DVB(1),DV(431)),(TOT(1),DVB(361))
EQUIVALENCE (ND(10),1),ND(102),J)
1111 FORMAT(1H,8X,21H** SPALT - (P(42) **10X,8A10/10X,8A10)
00 FORMAT(1H,3X,37H*** SPEED ALTITUDE PROFILE TABLES ***
/4X,10HSTANDARD ATMOSPHERE//15X,8HALTITUDE,3X,
11HTEMPERATURE,5X,7HDESBITY,5X,8HPRESSURE,5X,1H0,5X,
14HVELOCITY OF SOUND/17X,4HFEET,5X,11HDEG RANKINE,7X,3HPCF,10X,
3HPSF,5X,8HFT/SEC SQ,7X,8HFT/SEC)
02 FORMAT(12X,F11.1,F12.3,5X,F10.7, F12.2,F11.3,F14.2)
04 FORMAT(//4X,13HPROFILE TABLE//4X,
WULT,3X,WH(1),4X,WH(10),3X,BPE,2X,7HPTZ/PTO,2X,
BRAIN T,4X,BPTZ,4X,BPE,4X,WH(1),4X,WH(1),3X,BPE,2X,
7HPTZ/PTO,2X,BRAIN T,4X,BPTZ,4X,BPE/4X,
WFEET,4X,B00N,5X,BPSF,4X,B00N,11X,SCEG R,4X,BPSI,4X,BPSI,
4X,B00N,5X,BPSF,4X,B00N,11X,SCEG R,4X,BPSI,4X,BPSI)
06 FORMAT(10.1,F0.2,F0.2,F0.2,F7.4,F0.2,F7.2,F7.2,F0.2,F0.2,
F7.4,F0.2,F7.2)

```

01/08/74

AUTOFLSH CHART SET - SHEEP

DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

.....
SUBROUTINE TEMPRE
.....

CHART TITLE - SUBROUTINE TYPE

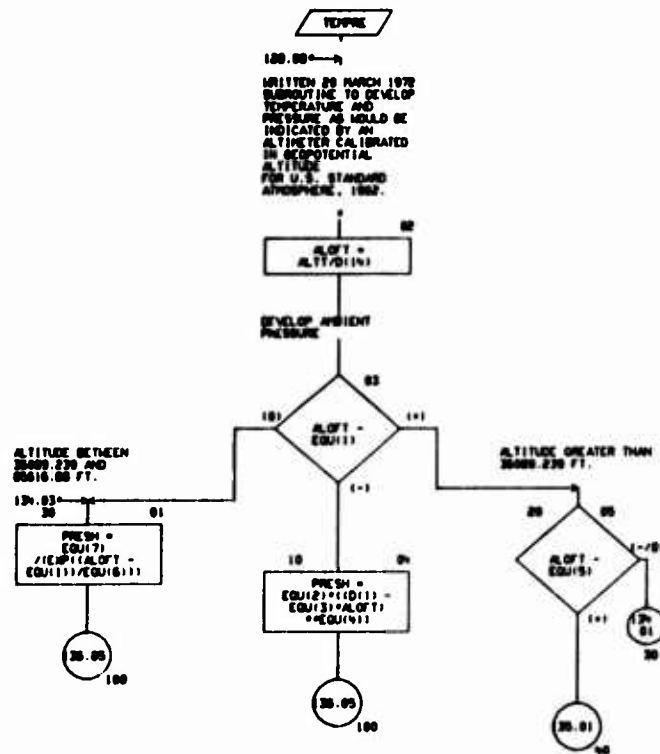


CHART TITLE - SUBROUTINE TEMPRE

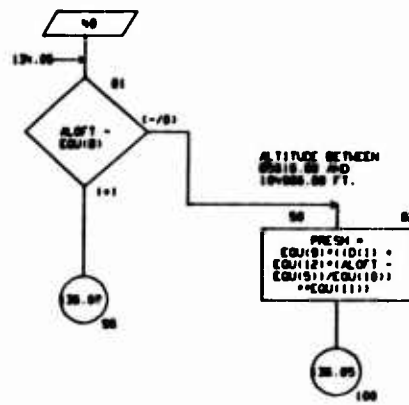


CHART TITLE - SUBROUTINE TEMPRE

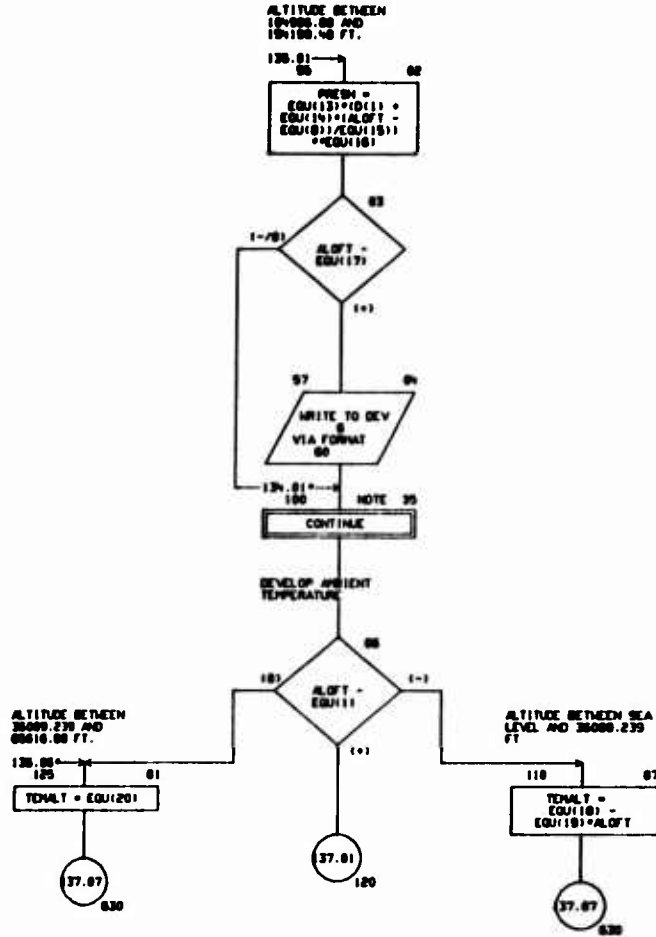


CHART TITLE - SUBROUTINE TENDRE

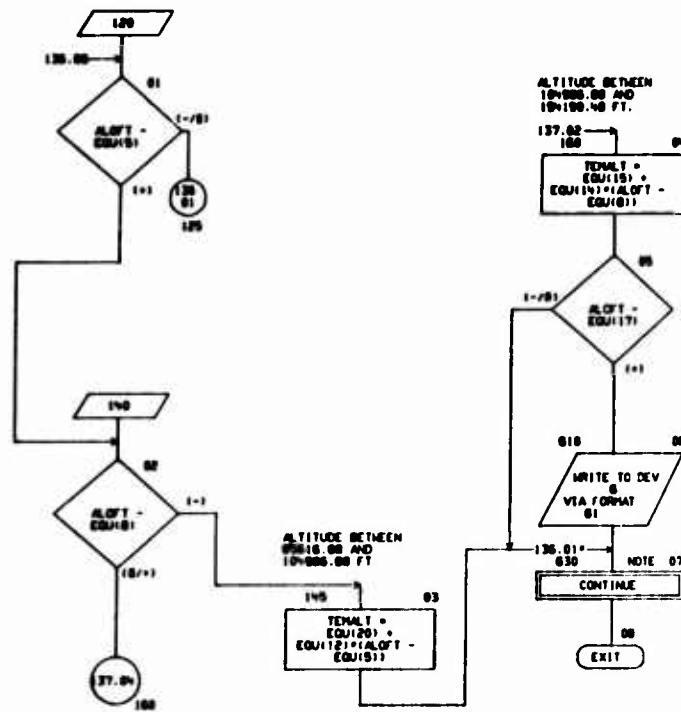


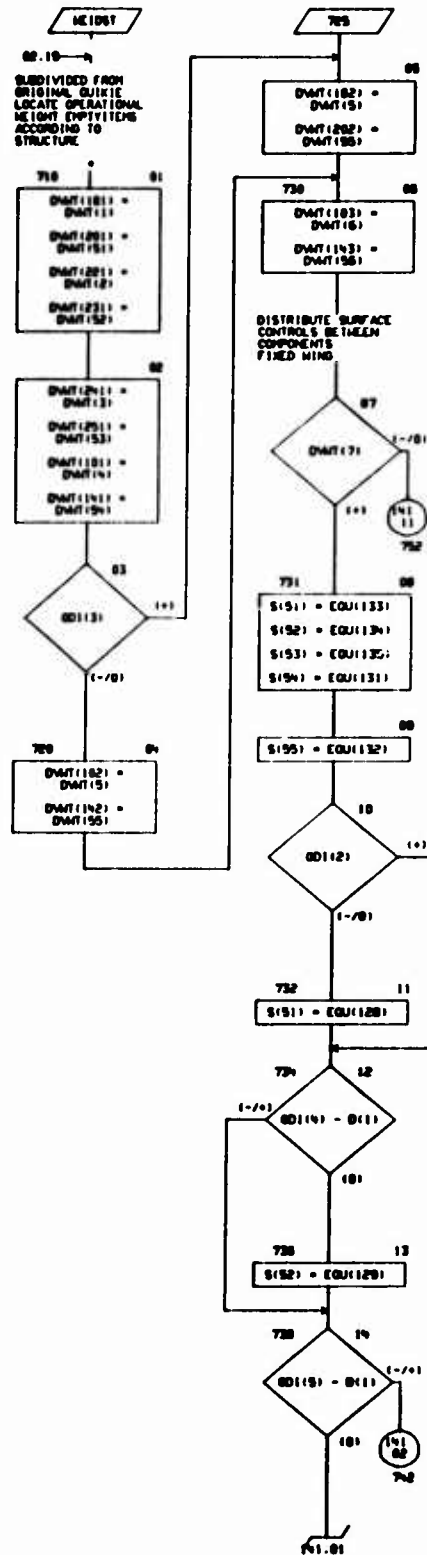
CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4320)
DIMENSION D(700),DD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
EQUIVALENCE (D(1),TCON(1)),(DD(1),TCON(701)),(DV(1),TCON(1401)),
              (S(1),TCON(1371)),(ND(1),TCON(4121))
EQUIVALENCE (D(0),EQU(1))
EQUIVALENCE (S(1),TEMP(1)),(S(2),PRES), (S(3),ALFT), (S(4),ALTI)
00  FORMAT(1H0,5X,23H*** WARNING MESSAGE ***.15X,
        1H0ALITUDE IS BEYOND VALID RANGE OF PRESSURE)
01  FORMAT(1H0,5X,23H*** WARNING MESSAGE ***.15X,
        1H0ALITUDE IS BEYOND VALID RANGE OF TEMPERATURE)
```

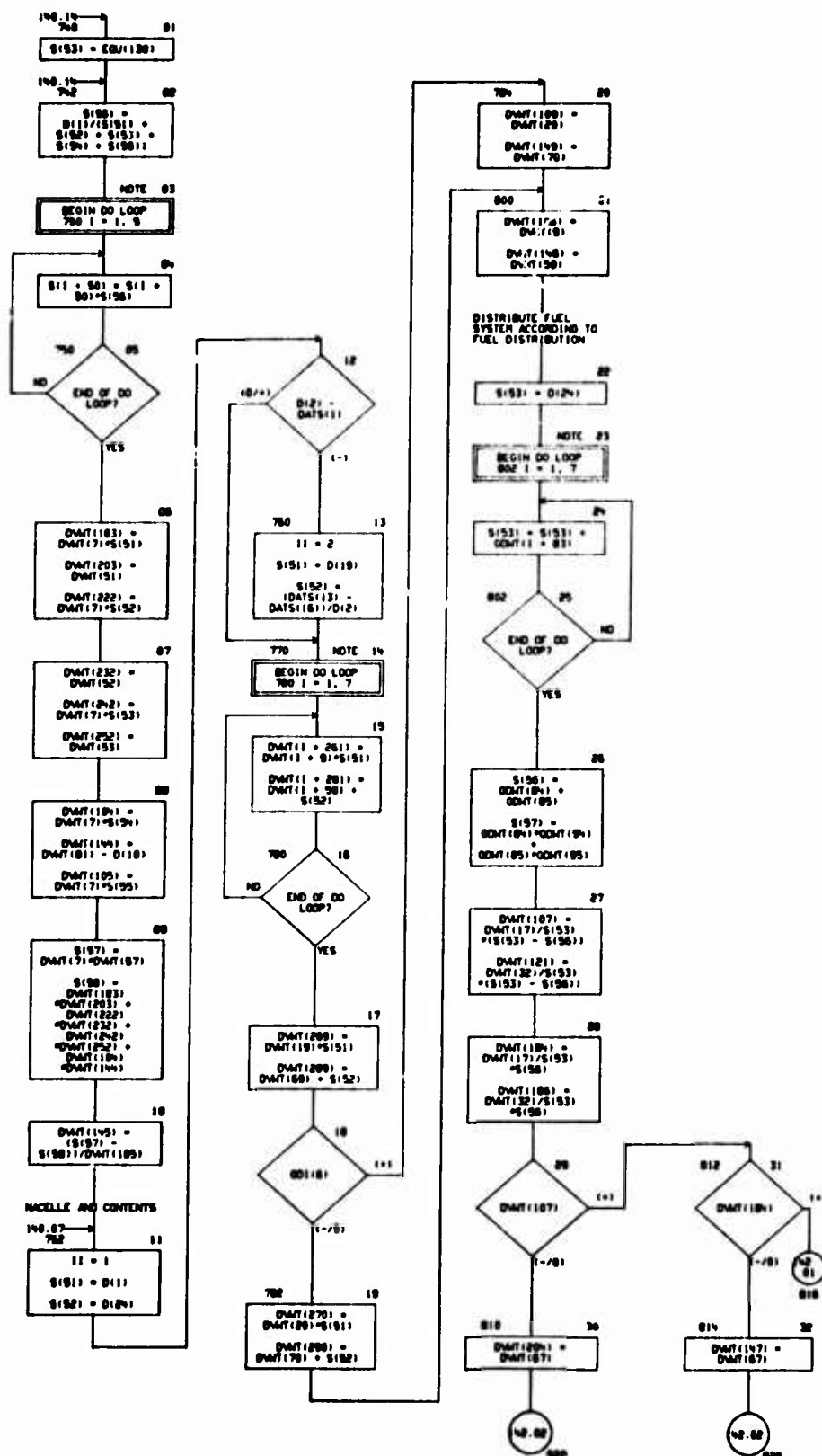

CHART TITLE - INTRODUCTORY COMMENTS

!!
SUBROUTINE MENDST
!!

CHART TITLE - SUBROUTINE ME1061



ENTRY TITLE - SUBMITTING AGENCY



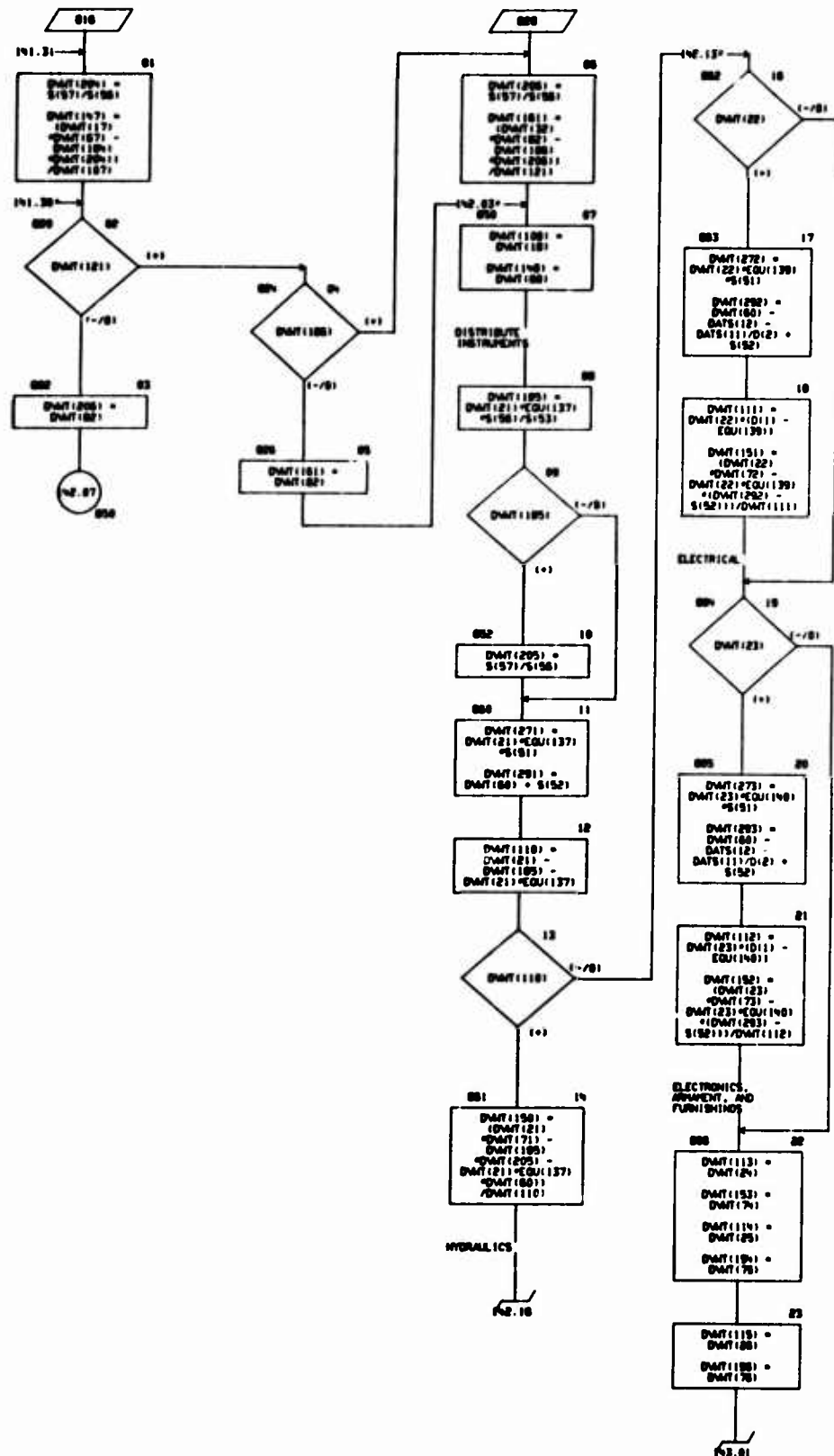


CHART TITLE - SUBROUTINE ME1061

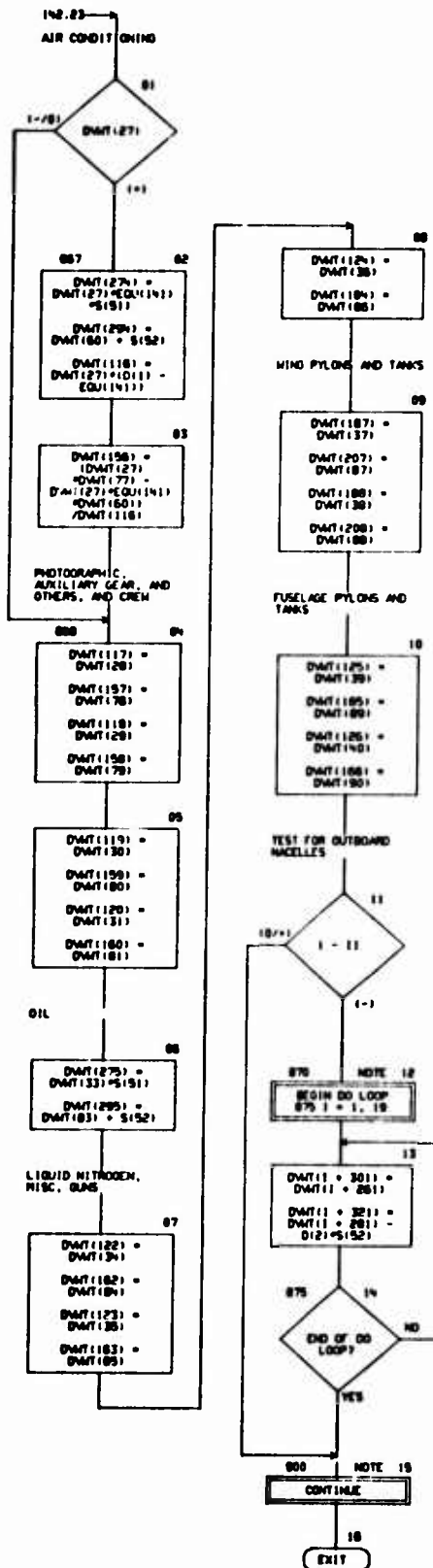


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCON(4320)
COMMON /PRINT/ (P(80)
DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION OD(120),ODMT(100),DATS(40),DMAT(1000)
EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(70)),(DV(1),TCON(140)),
             (S(1),TCON(370)),(ND(1),TCON(412))
EQUIVALENCE (OD(11),OD(1)),(ODMT(1),OD(81)),(DATS(1),OD(461))
             , (DMAT(1),DV(112))
EQUIVALENCE (EQU(1),D(8))
EQUIVALENCE (1,ND(10)),(J,ND(102)),(11,ND(107))
```

01/08/74

AUTOFLSH CHART SET - SHEEP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

SUBROUTINE MANDGO
#####

CHART TITLE - SUBROUTINE WMMED

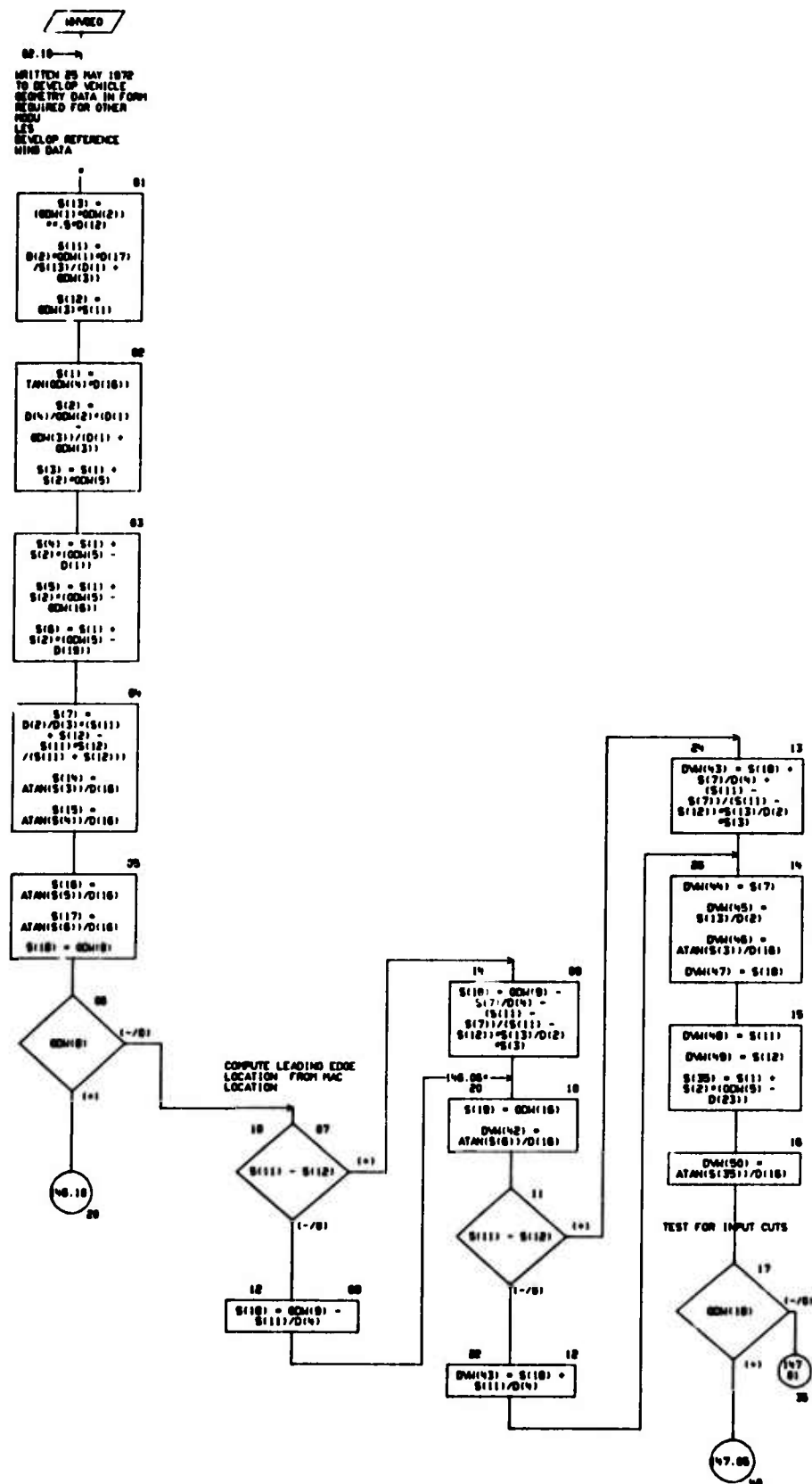


CHART TITLE - SUBROUTINE MONED

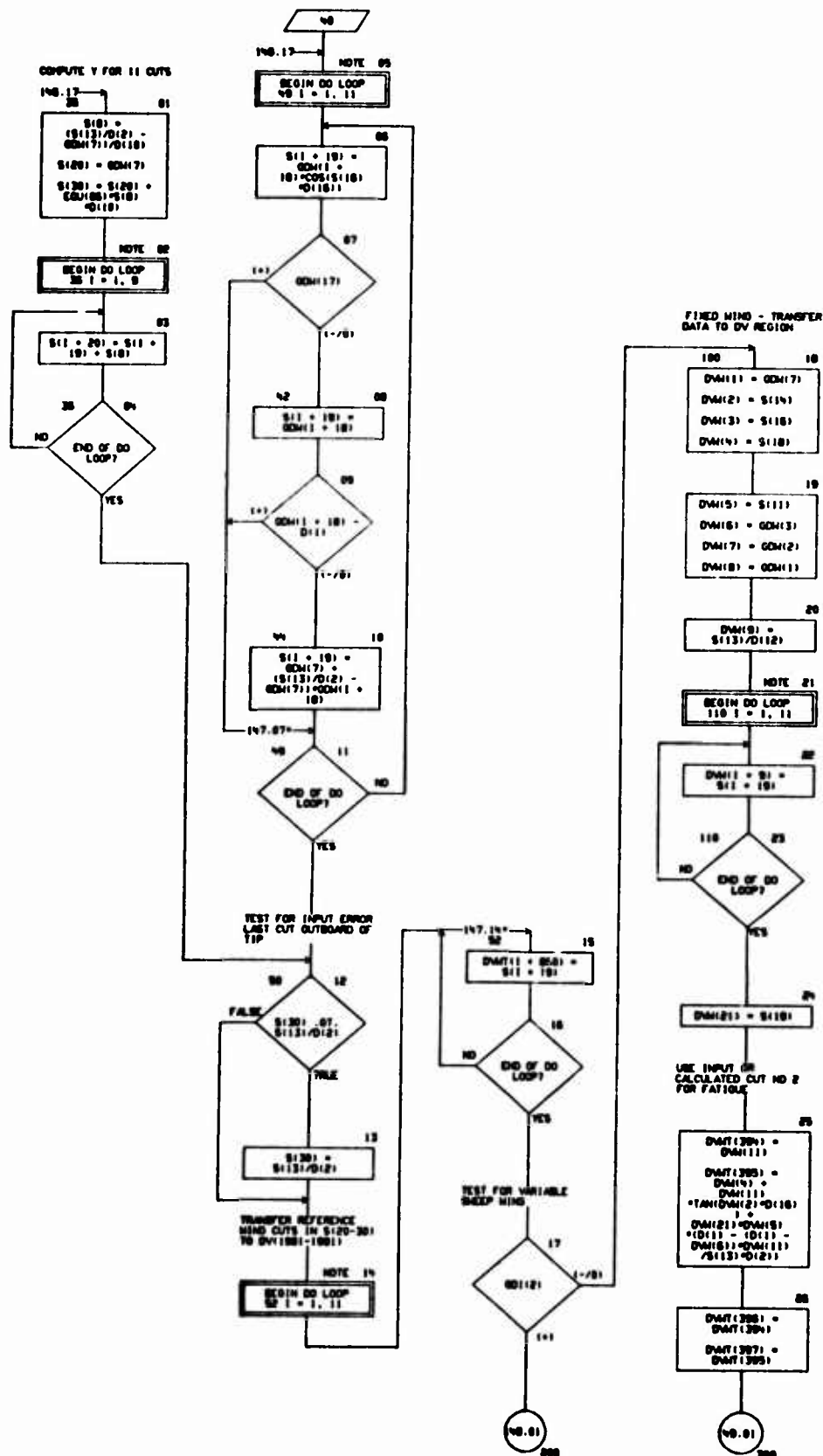


CHART TITLE - SUBROUTINE WAVEC

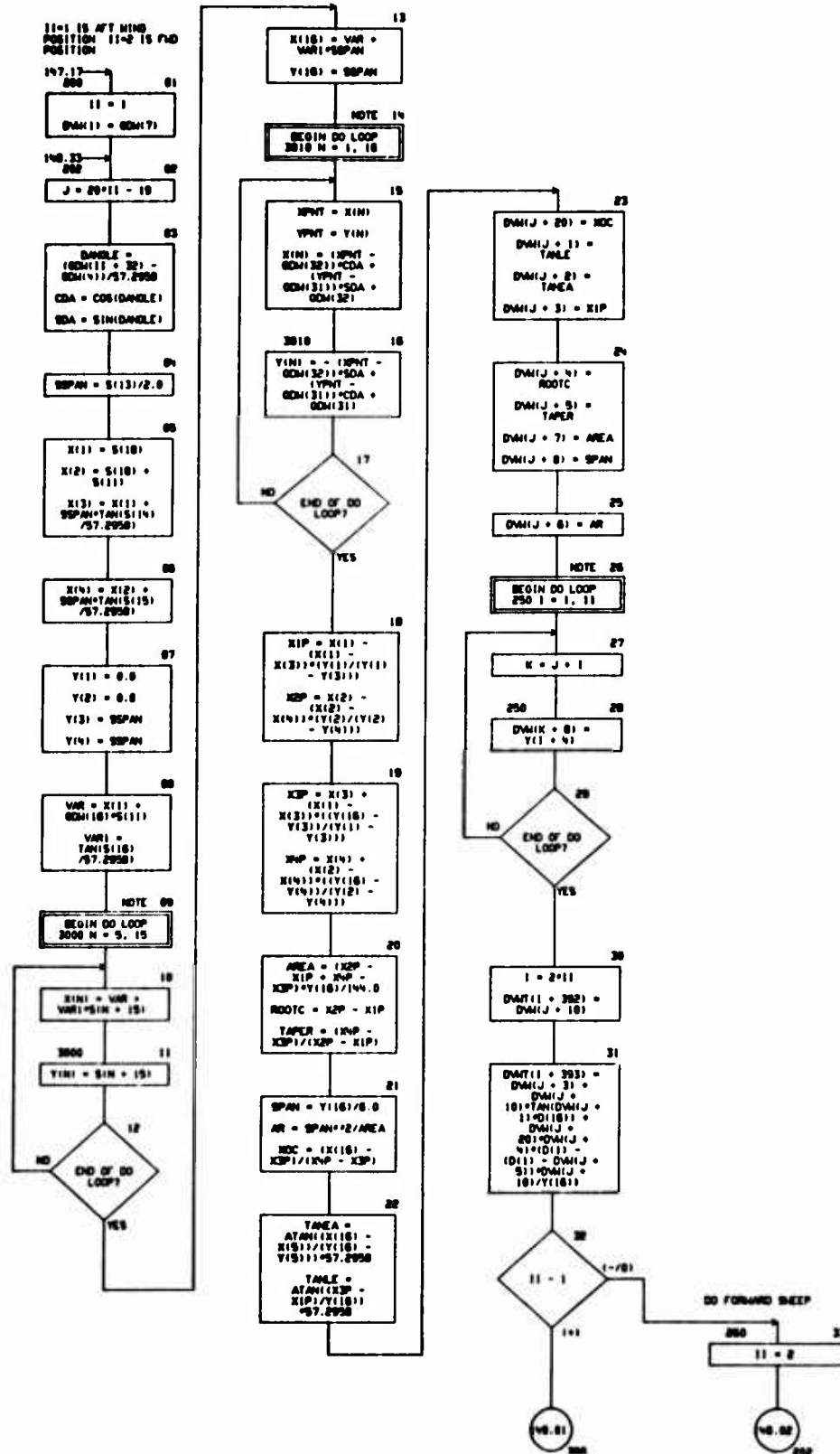
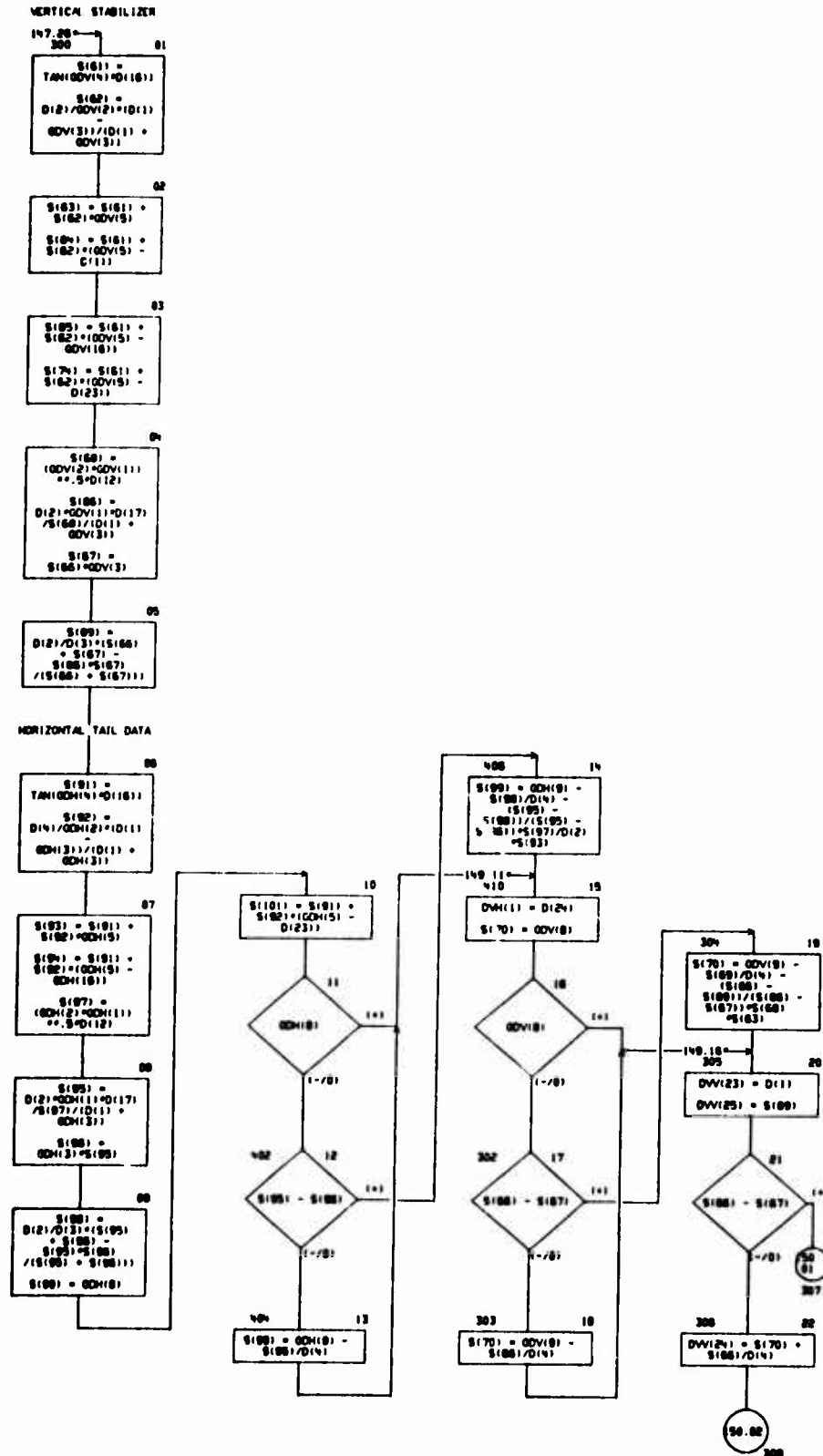


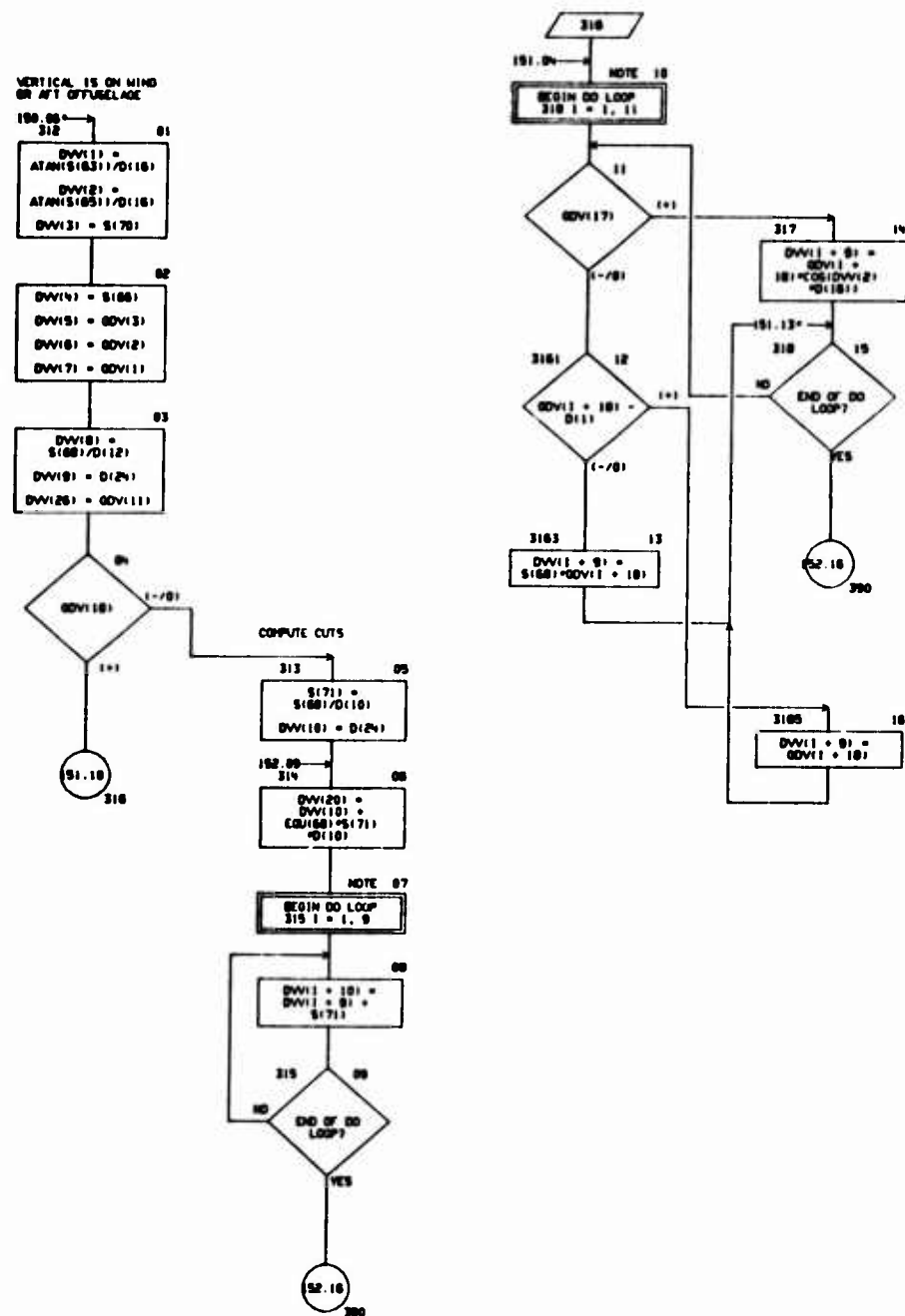
CHART TITLE - SUBROUTINE WNV00



```

graph TD
    Start([START]) --> 140.01[140.01]
    140.01 --> 01[01]
    01 --> 140.02[140.02]
    140.02 --> 02[02]
    02 --> 03[03]
    03 --> 04[04]
    04 --> 05[05]
    05 --> 06[06]
    06 --> 07[07]
    07 --> 08[08]
    08 --> 09[09]
    09 --> 10[10]
    10 --> 11[11]
    11 --> 12[12]
    12 --> 13[13]
    13 --> 14[14]
    14 --> 15[15]
    15 --> 16[16]
    16 --> 17[17]
    17 --> 18[18]
    18 --> 19[19]
    19 --> 20[20]
    20 --> 21[21]
    21 --> 22[22]
    22 --> 23[23]
    23 --> 24[24]
    24 --> 25[25]
    25 --> 26[26]
    26 --> 27[27]
    27 --> 28[28]
    28 --> 29[29]
    29 --> 30[30]
    30 --> 31[31]
    31 --> 32[32]
    32 --> 33[33]
    33 --> 34[34]
    34 --> 35[35]
    35 --> 36[36]
    36 --> 37[37]
    37 --> 38[38]
    38 --> 39[39]
    39 --> 40[40]
    40 --> 41[41]
    41 --> 42[42]
    42 --> 43[43]
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CHART TITLE - SUBROUTINE WAVE0

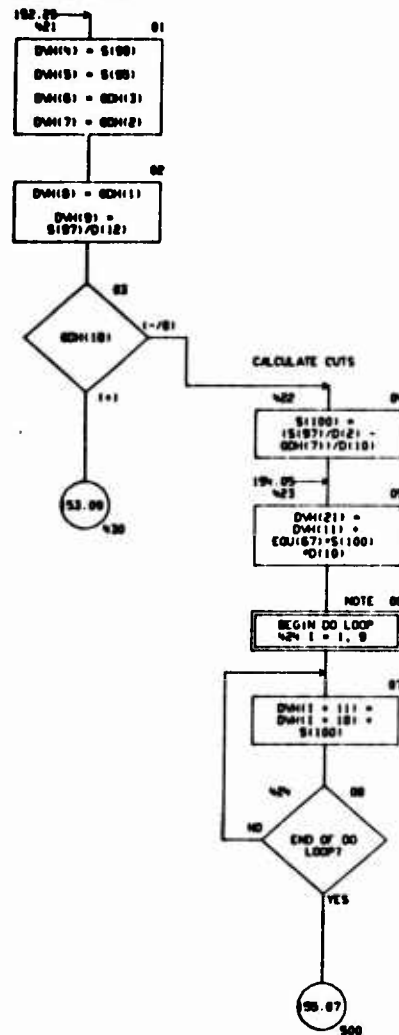


HORIZONTAL TAIL ON
FURLEACE



CHART TITLE - SUBROUTINE MMWEO

GROSS DATA GIVEN



CUTS ARE INPUT

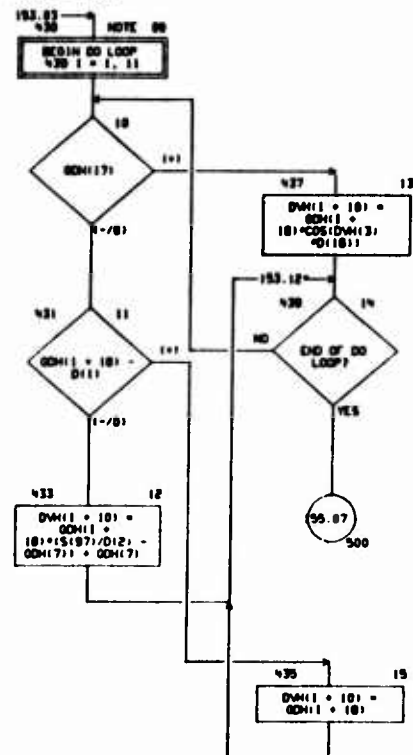


CHART TITLE - SUBROUTINE WANGEO

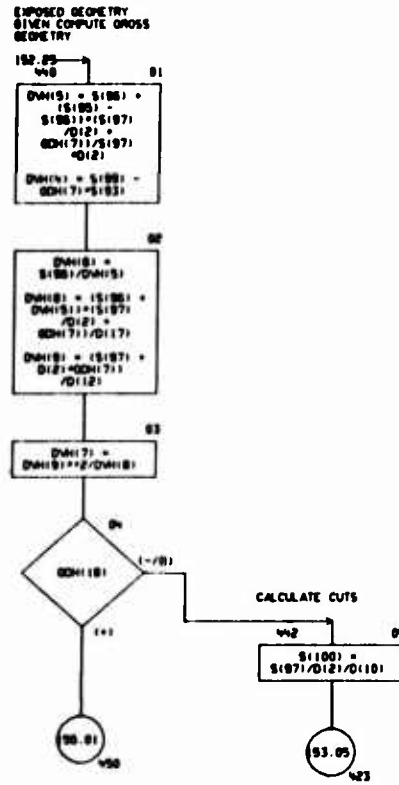


CHART TITLE - SUBROUTINE WNDGEO

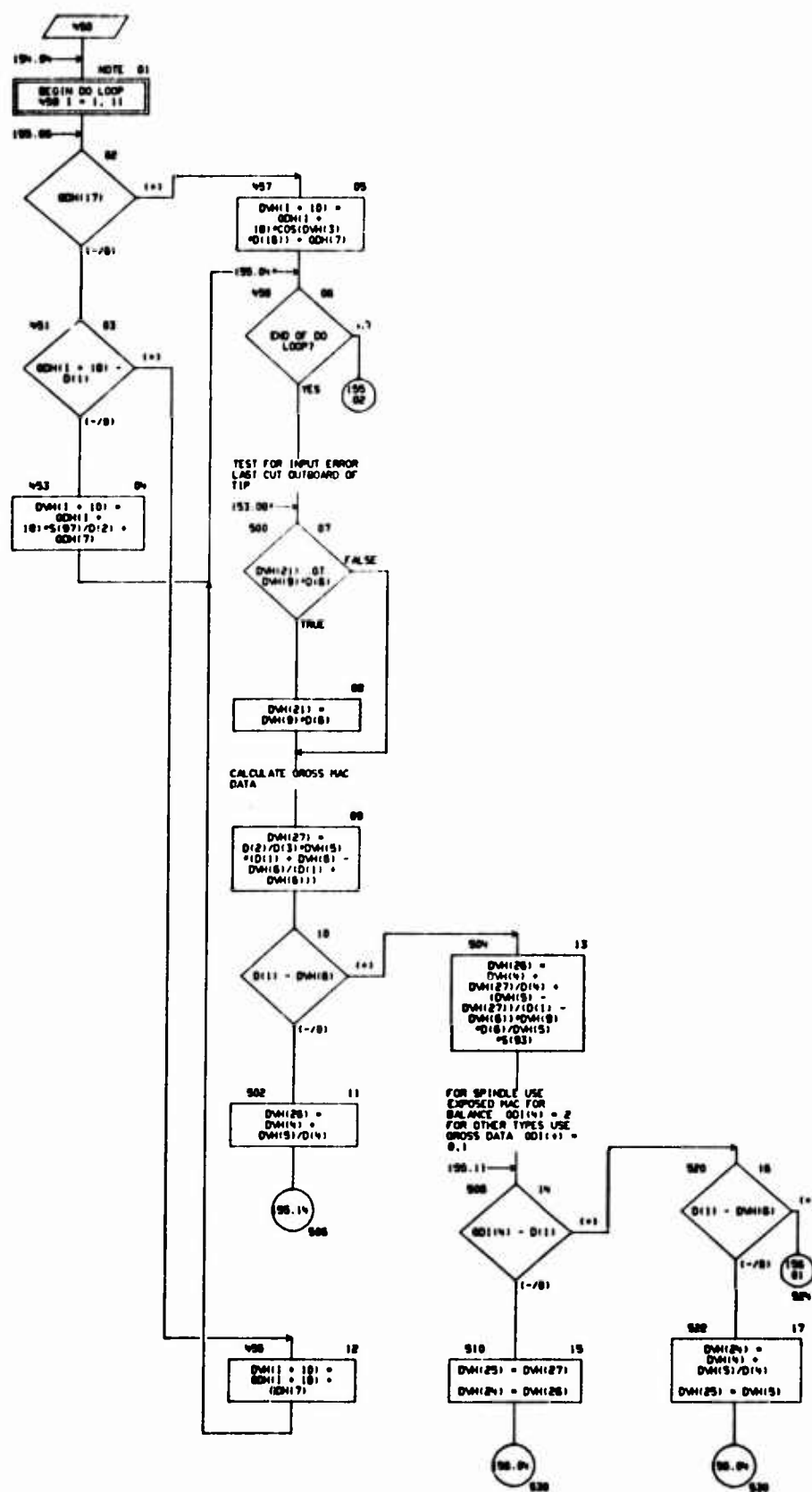


CHART TITLE - SUBROUTINE MMX00

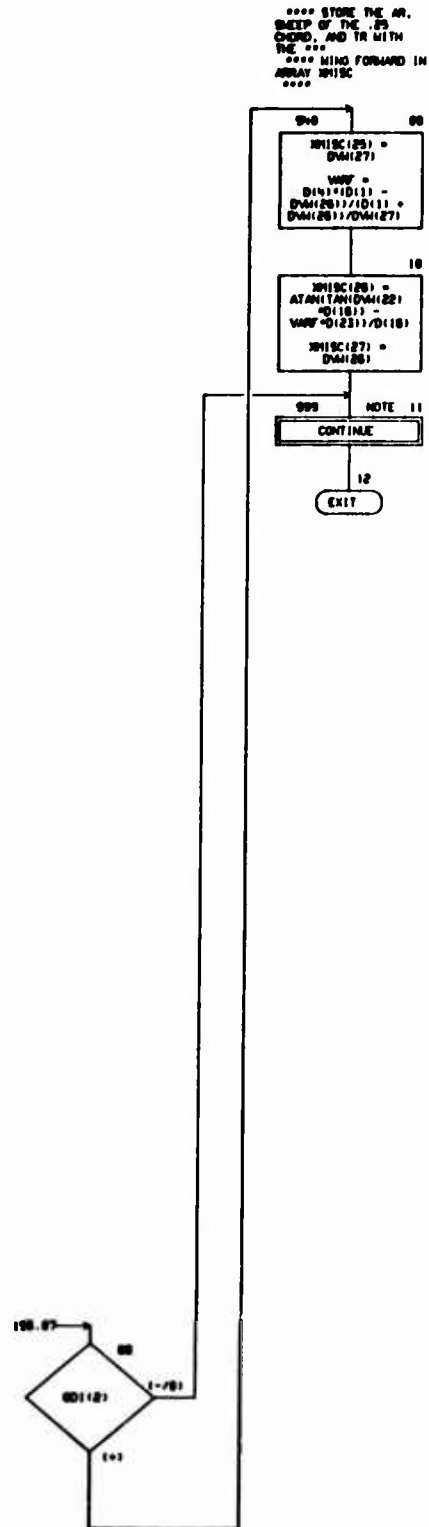
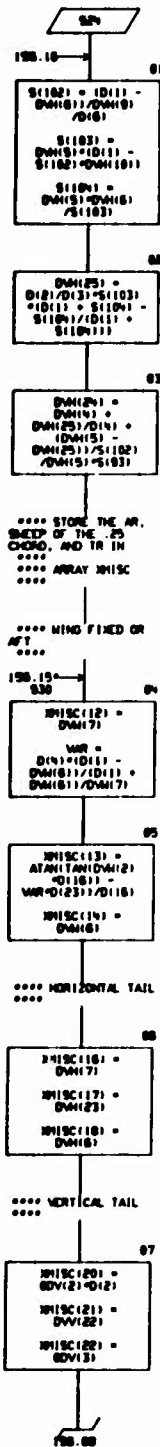


CHART TITLE - NON-PROCEDURAL STATEMENTS

```
COMMON TCOM(4320)
COMMON /MISC/ MISC(100)
DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
DIMENSION EQU(200)
DIMENSION GD(20),GD(80),X(10),Z(10)
DIMENSION GDM(50),GDM(40),GDV(40),DWM(50),DWM(30),DVM(30)
DIMENSION DWT(1000)
DIMENSION X(8),Y(8)
EQUIVALENCE (D(1),TCOM(1)),(D(10),TCOM(70)),(DV(1),TCOM(140)),
              (S(1),TCOM(137)),(ND(1),TCOM(412))
EQUIVALENCE (EQU(1),D(8))
EQUIVALENCE (GD(1),GD(1)),(GD(1),GD(30))
              , (X(1),GD(8)),(Z(1),GD(10))
EQUIVALENCE (GDM(1),GD(25)),(GDM(1),GD(30)),(GDV(1),GD(34)),
              (DWM(1),DV(32)),(DWM(1),DV(37)),(DVM(1),DV(40))
EQUIVALENCE (DWT(1),DV(112))
EQUIVALENCE (I,ND(101)),(J,ND(102)),(K,ND(103)),(L,ND(107))
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01/00/74

AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE

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CHART TITLE - INTRODUCTORY COMMENTS

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*****
SUBROUTINE WMOOST
*****

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CHART TITLE - SUBROUTINE MNDOST



CHART TITLE - SUBROUTINE M0001

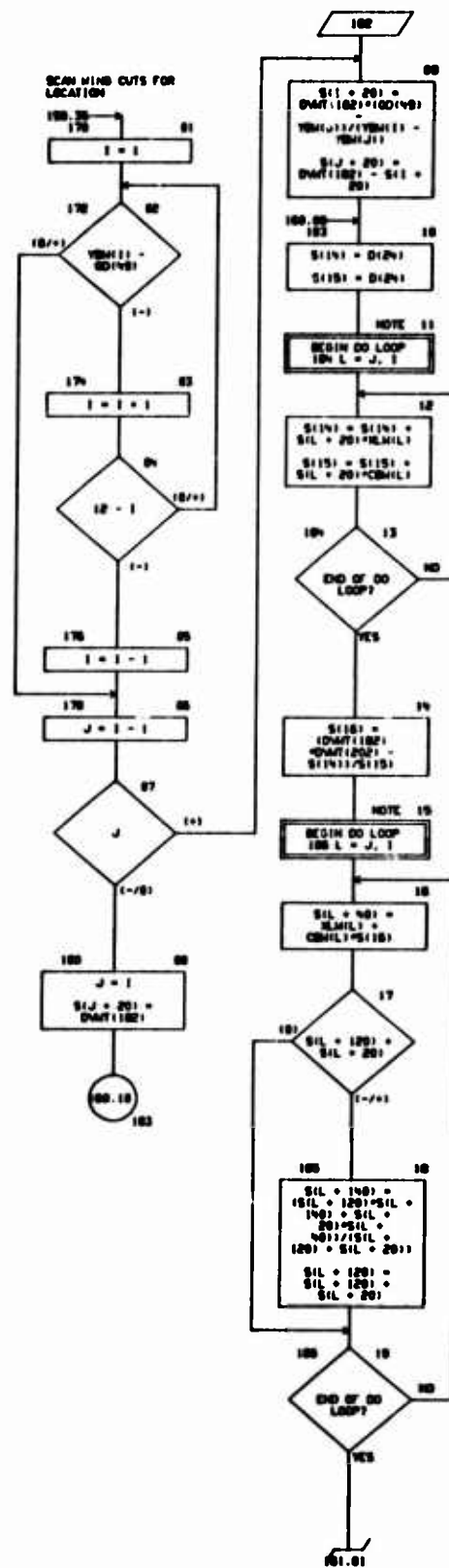


CHART TITLE - SUBROUTINE M0057

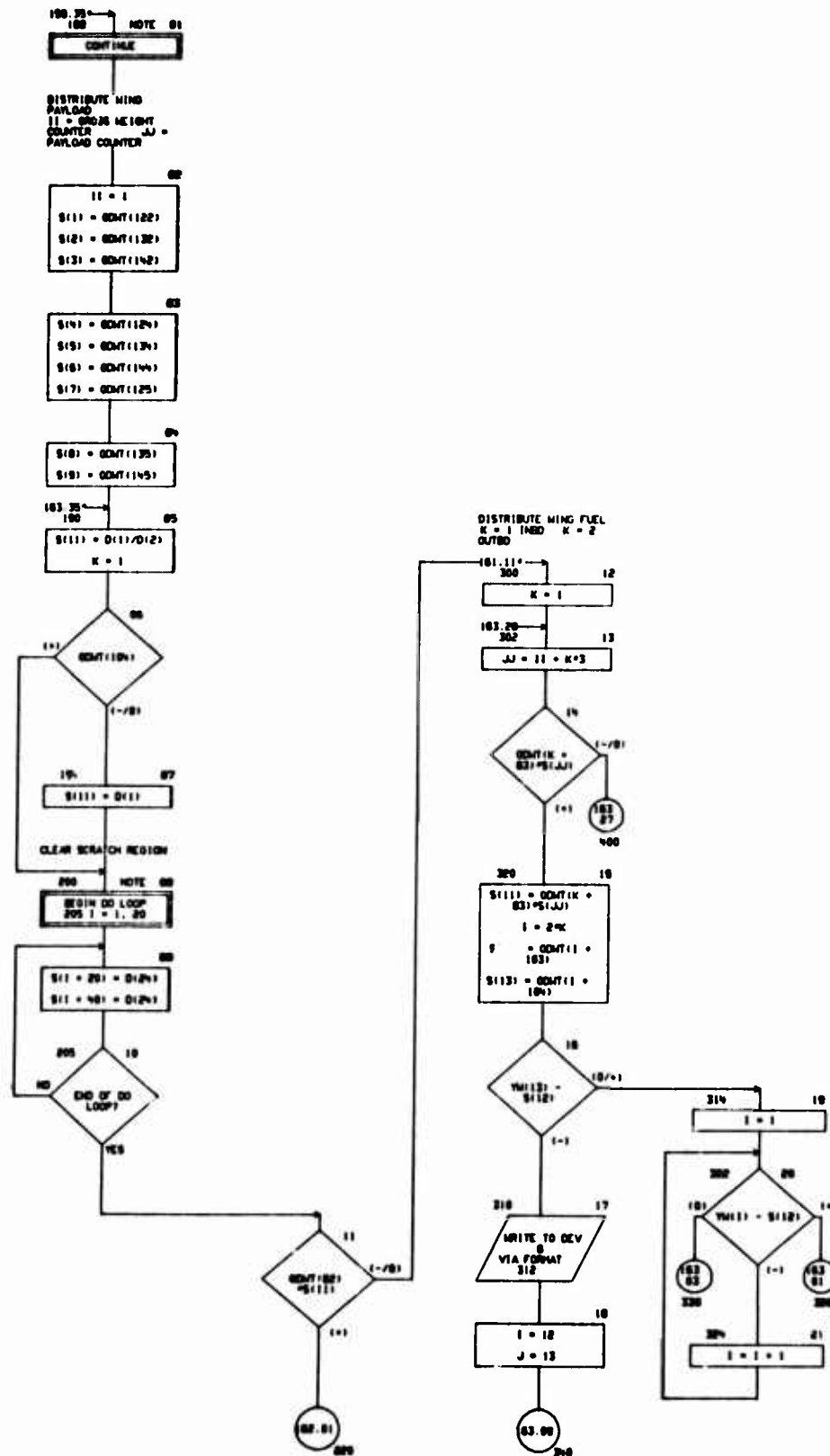


CHART TITLE - SUBROUTINE M00061

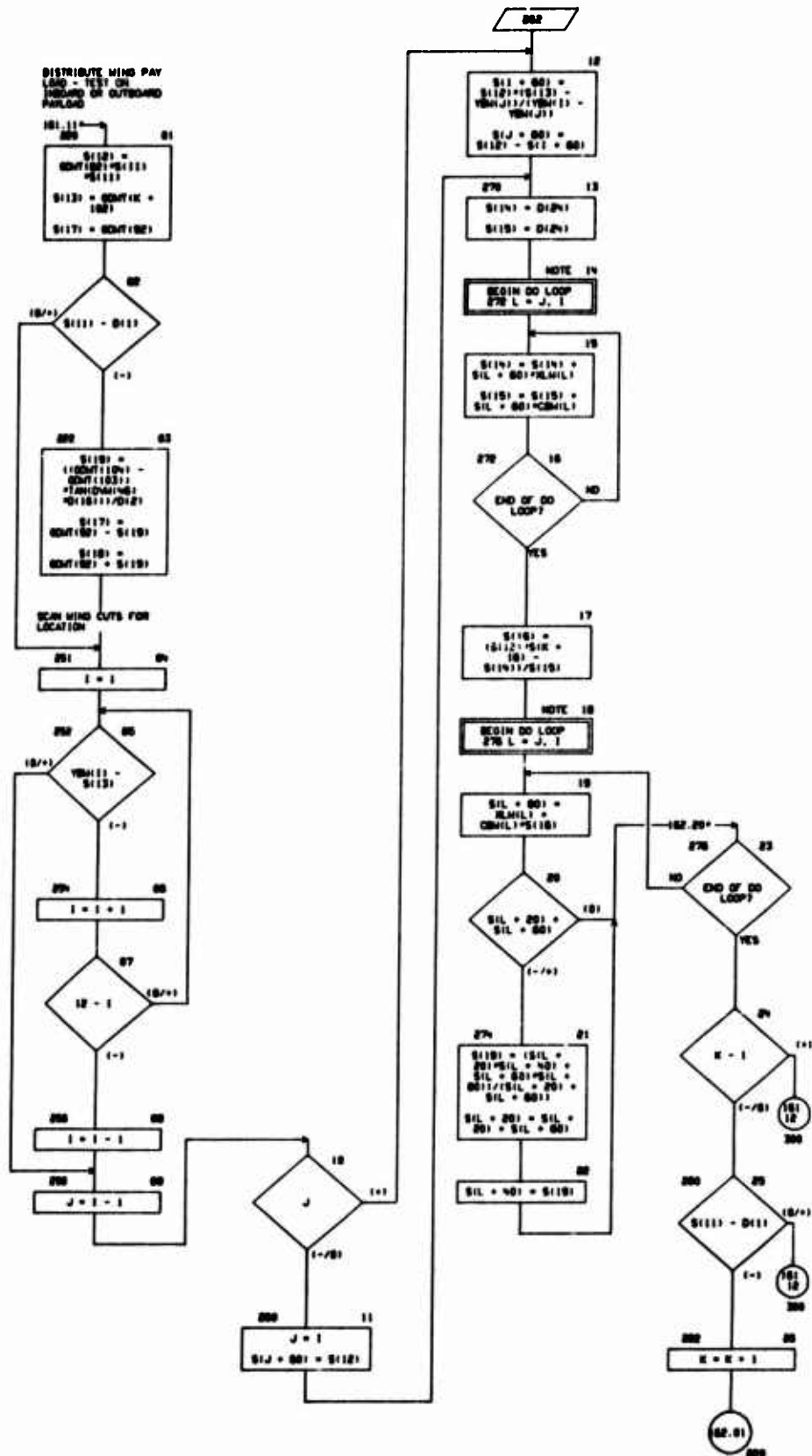


CHART TITLE - SUBROUTINE WOODST

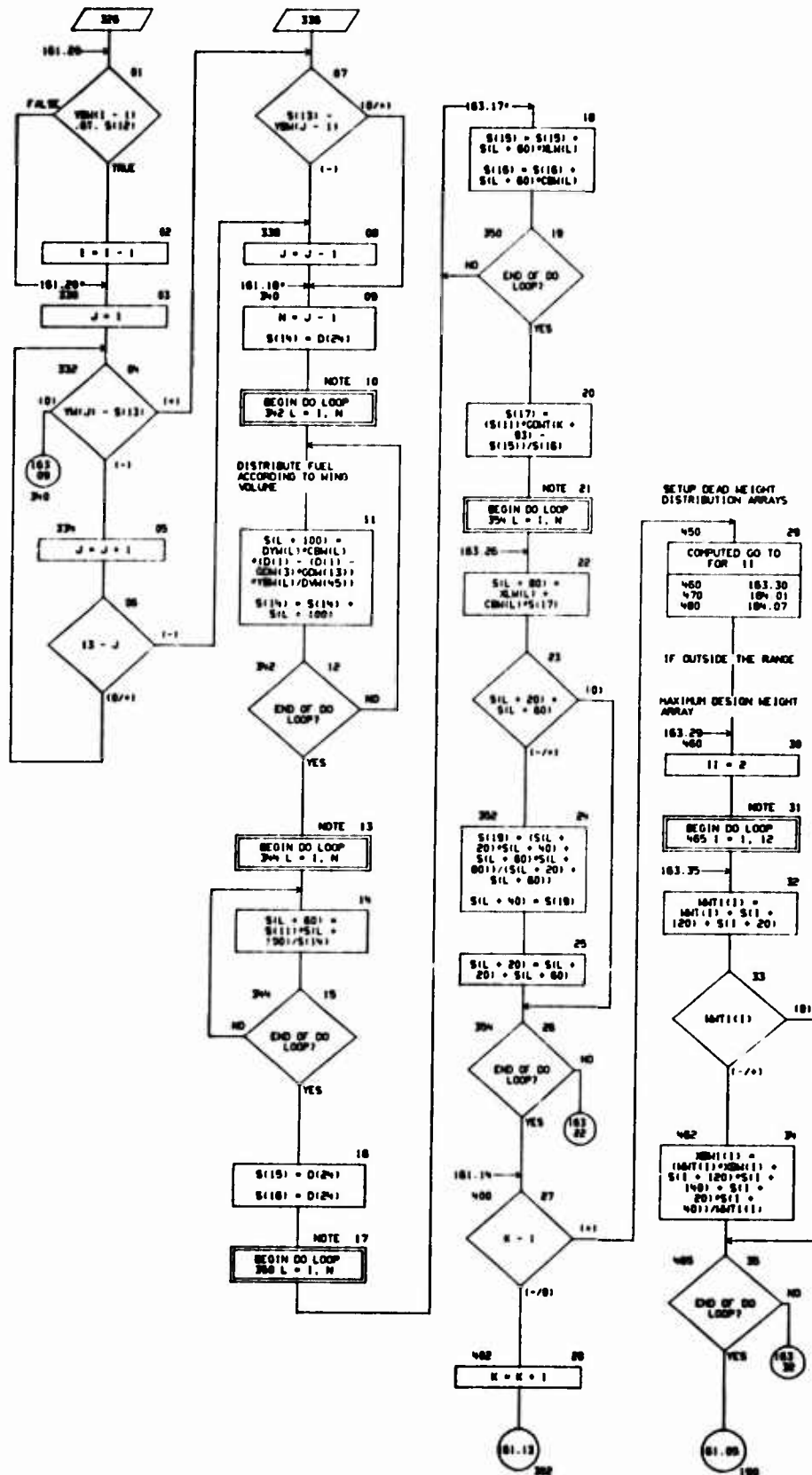


CHART TITLE - SUBROUTINE M00061

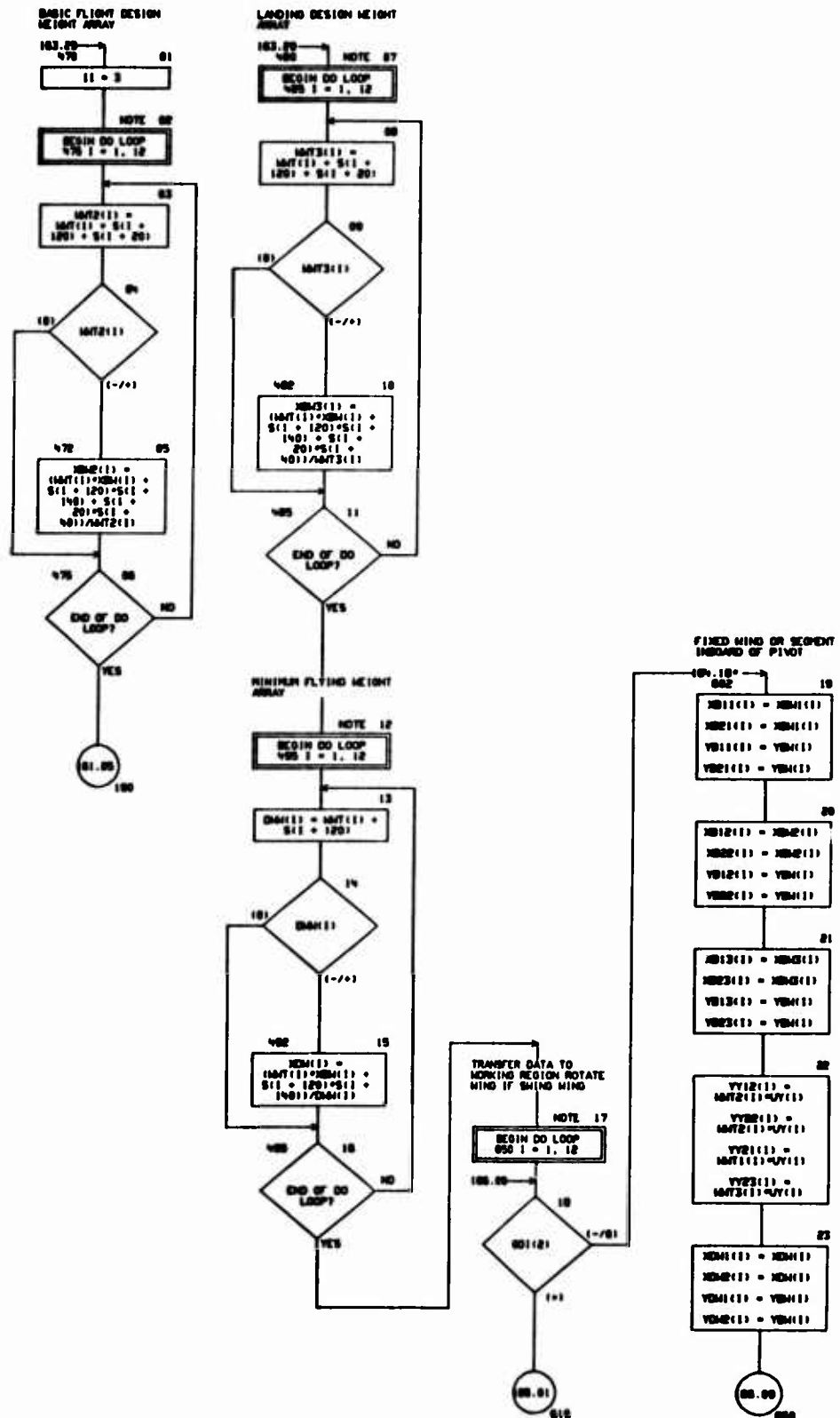


CHART TITLE - SUBROUTINE MNDST

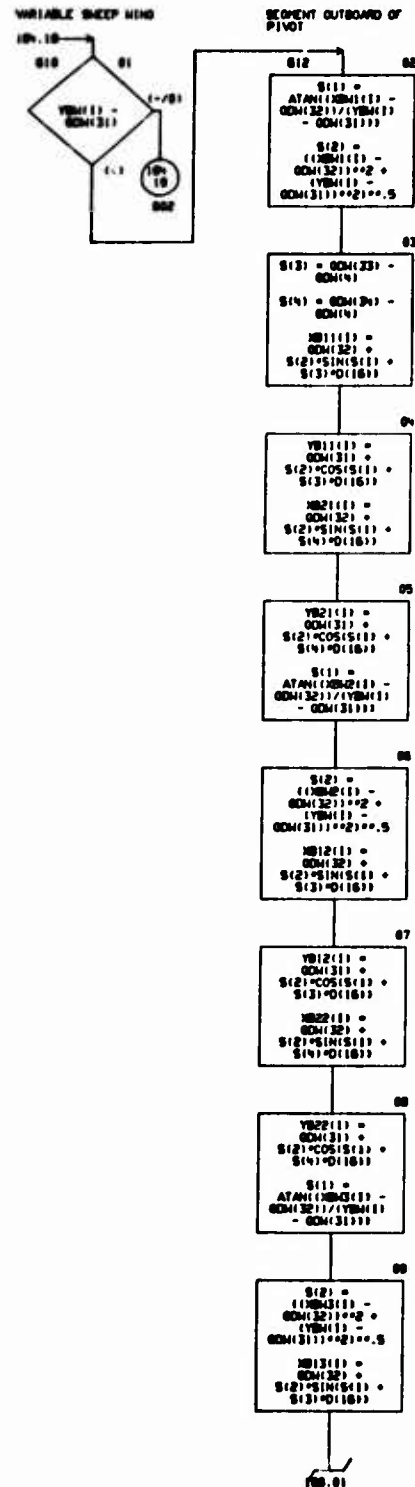


CHART TITLE - SUBROUTINE WINDST

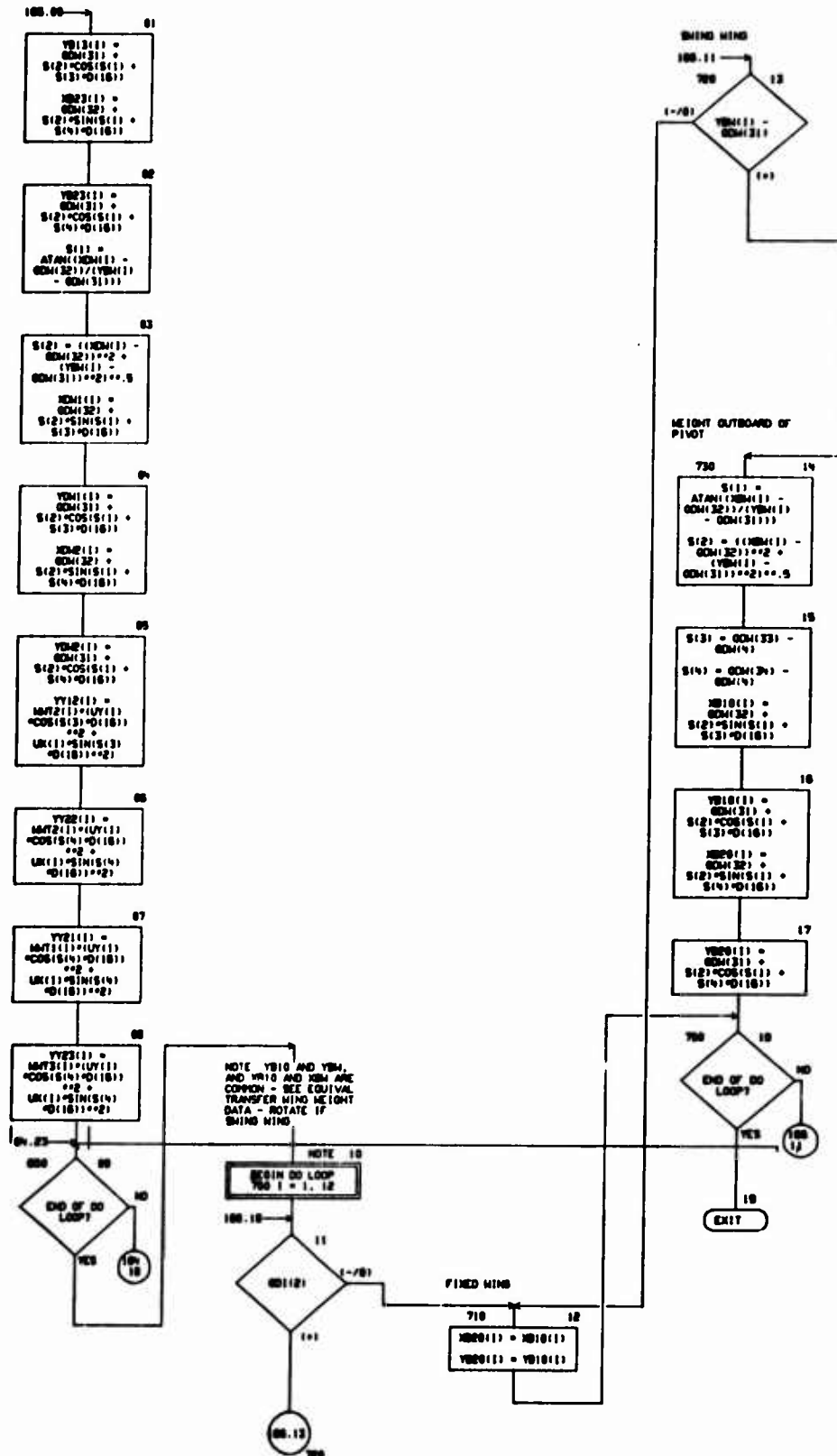


CHART TITLE - NON-PROCEDURAL STATEMENTS

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COMMON TCOM(4320)
DIMENSION O(700),OD(700),OV(2320),S(400),ND(200)
DIMENSION OD(120),ODT(100),ODM(50)
DIMENSION DM(50),DWT(1000)
DIMENSION YM(13),YBM(12),DYM(12),CBM(12),UK(12),UY(12),UZ(12)
DIMENSION XLM(12)
DIMENSION XB(10(12),YB(10(12),XB20(12),YB20(12)
DIMENSION MAT(12),XBM(12),MAT(12),XBM(12),MAT2(12),XBM2(12),
MAT3(12),XBM3(12),XB1(12),XB2(12),YB1(12),YB2(12),
XB12(12),XB22(12),YB12(12),YB22(12),XB13(12),XB23(12),
YB13(12),YB23(12),YY12(12),YY22(12),YY21(12),YY23(12)
DIMENSION DM(12),XDM(12),XDM(12),XDM2(12),YDM(12),YDM2(12)
EQUIVALENCE (O(1),TCOM(1)),(OD(1),TCOM(701)),(OV(1),TCOM(1401)),
(S(1),TCOM(3701)),(ND(1),TCOM(4121))
EQUIVALENCE (DM(1),DWT(321)),(DWT(1),DWT(1121))
, (OD(1),OD(1)), (ODT(1),OD(01)), (ODM(1),OD(251))
EQUIVALENCE (YM(1),DWT(1301)),(YBM(1),DWT(1401)),
(DYM(1),DWT(1431)),(CBM(1),DWT(14251)),(UK(1),DWT(14371)),
(UY(1),DWT(14401)),(UZ(1),DWT(14611))
EQUIVALENCE (XLM(1),S(101))
EQUIVALENCE (MAT(1),DWT(14731)),(XBM(1),DWT(14951)),
(MAT(1),DWT(14971)),(XBM(1),DWT(15091)),(MAT2(1),DWT(15211)),
(XBM2(1),DWT(15331)),(MAT3(1),DWT(15451)),(XBM3(1),DWT(15571)),
(XB1(1),DWT(15691)),(XB2(1),DWT(15811)),(YB1(1),DWT(15931)),
(YB2(1),DWT(16051)),(XB12(1),DWT(16171)),(XB22(1),DWT(16291)),
(YB12(1),DWT(16411)),(YB22(1),DWT(16531)),(XB13(1),DWT(16651)),
(XB23(1),DWT(16771)),(YB13(1),DWT(16891)),(YB23(1),DWT(17011)),
(YY12(1),DWT(17131)),(YY22(1),DWT(17251)),(YY21(1),DWT(17371)),
(YY23(1),DWT(17491))
EQUIVALENCE (YB10(1),DWT(14011)),(XB20(1),DWT(14131)),
(YB20(1),DWT(14251)),(XB10(1),DWT(14051))
EQUIVALENCE (DM(1),DWT(18721)),(XDM(1),DWT(18941))
, (XDM(1),DWT(18961)),(XDM2(1),DWT(19081))
, (YDM(1),DWT(19201)),(YDM2(1),DWT(19321))
EQUIVALENCE (I,ND(101)),(J,ND(102)),(K,ND(103)),(L,ND(104)),
(N,ND(106)),(11,ND(107)),(12,ND(108))
312 FORMAT(1H0,20X,35HERROR INSD FUEL RIB IS OUTSD OF TIP)

```

PORTMAN MODULE (LIST,AUTOREG)

CARD NO	CONTENTS
1	C
2	C (*****)
3	C PROGRAM DATA
4	C (*****)
5	C
6	C PROGRAM DATA
7	C
8	C MAIN CONTROL DATA MANAGEMENT, DEAD WT DIST. AND INERTIA
9	C WRITTEN 25 MAY 1972
10	C COMMON TCOM(4320)
11	C COMMON /PRINT/ (P(00)
12	C COMMON /MISC/ MISC(100)
13	C
14	C DIMENSION D(700),DD(700),DV(2320),S(400),ND(200)
15	C
16	C DIMENSION GDB(80),DATS(40),DATD(70),DATN(70)
17	C
18	C DIMENSION BC(200)
19	C
20	C
21	C EQUIVALENCE (D(1),TCOM(1)),(DD(1),TCOM(70)),(DV(1),TCOM(140)),
22	C (S(1),TCOM(370)),(ND(1),TCOM(412))
23	C
24	C EQUIVALENCE (BC(1),DV(212))
25	C
26	C EQUIVALENCE (GDB(1),DD(30)),(DATS(1),DD(40)),
27	C (DATD(1),DD(50)),(DATN(1),DD(50))
28	C
29	C
30	C EQUIVALENCE (ITP,ND(111)),(INV,ND(112))
31	C EQUIVALENCE (INC,ND(115)),(KE,ND(116)),(KED,ND(117)),
32	C (KNEB,ND(118)),(KNCN,ND(119)),(KCN,ND(120))
33	C
34	C DD 700 N=1,4320
35	C 700 TCOM(4320) = 0.0
36	C
37	C READ GENERAL DATA IN RECORD 11
38	C
39	C CALL READG(1,D(1),1400,1)
40	C
41	C ITP = DATS(1)
42	C INV = DATS(3)
43	C KE = GDB(1)
44	C KED = GDB(2)
45	C KNEB = DATD(1)
46	C KNCN = DATD(2)
47	C CALL SPVAL
48	C CALL GDBOP
49	C CALL FURBED
50	C CALL MOWBED
51	C CALL BUCKED
52	C IF (ITP) 32,32,30
53	C
54	C
55	C
56	C
57	C
58	C
59	C
60	C
61	C
62	C
63	C
64	C
65	C
66	C
67	C
68	C
69	C
70	C

CARD NO	CONTENTS
71	C FURTHER USAGE
72	IF(1P(48))5005,5005,5005
73	5005 CONTINUE
74	CALL PRTHGE
75	5005 CONTINUE
76	CALL MHDSST
77	CALL FURDSST
78	CALL CONDST
79	CALL FTOTAL
80	C
81	C
82	C
83	C
84	C
85	C
86	C
87	C
88	CALL ANDATA
89	C
90	C
91	C
92	C
93	C
94	C
95	C
96	C
97	CALL DBLCNT
98	C
99	C
100	C
101	C
102	C
103	C
104	C
105	C
106	C
107	CALL DBMMS
108	C
109	C
110	C
111	C
112	C
113	C
114	C
115	C
116	CALL DBCNTL
117	C
118	C
119	C
120	C
121	C
122	C
123	C
124	C
125	CALL DBFMS
126	C
127	C
128	C
129	C
130	C
131	C
132	C
133	C
134	CALL DBMMS
135	C
136	C
137	C
138	IF(1P(48))5001,5001,5001
139	5001 CONTINUE
140	C
141	WRITE(6,24)

```

01/08/74      INPUT LISTING      AUTOFLON CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

142      24 FORMAT(1H1,2X,4H** TCON AT END OF DATA MANAGEMENT LINK **,
143      1 12X,21H** DATAIN - (P149) **)
144      WRITE(6,66)
145      66 FORMAT(1H0,2X,4H** VEHICLE GEOMETRY AND MISC DATA FILE **)
146      66 64 N=1,4100,5
147      IF( TCONIN+TCOMIN+1+TCOMIN+2+TCOMIN+3+TCOMIN+4) .EQ. 0.0 )
148      *      GO TO 64
149      WRITE(6,62) N,TCOMIN,TCOMIN+1,TCOMIN+2,TCOMIN+3,TCOMIN+4
150      62 FORMAT(4X,14,5F10.4)
151      64 CONTINUE
152      66 65 N=1,200,5
153      K=4120+N
154      IF(NDIN+NDIN+1+NDIN+2+NDIN+3+NDIN+4) .EQ. 0 : GO TO 65
155      WRITE(6,65) K, NDIN,NDIN+1,NDIN+2,NDIN+3,NDIN+4
156      65 FORMAT(4X,14,5I10)
157      65 CONTINUE
158      6622 CONTINUE
159      C
160      C      *****
161      C      WRITE BV ARRAY IN RECORD 18 FOR USE IN OUTPUT SUMMARY
162      C      MODULE ROUTINE OUTPUT
163      C
164      CALL WRITB(1,BV(1),2320,18)
165      C
166      C      *****
167      C
168      IF(1P147) 5003,5003,5004
169      5003 WRITE(6,400+IN,BCIN+1,BCIN+2,BCIN+3,BCIN+4,N=1,200,5)
170      400 FORMAT(1H1,2X,4H** BC ARRAY --- LOADS DATA --- RECORD 22 ***,
171      1 10X,21H** DATAIN - (P147) ****
172      * (10X,13,5F10.4) )
173      5004 CONTINUE
174      C
175      C      *****
176      C      WRITE BC ARRAY IN RECORD 22 FOR USE IN AIRLOADS MODULE
177      C
178      CALL WRITB(1,BC(1),195,22)
179      C
180      C      *****
181      C
182      C
183      C      *****
184      C      1H1SC(24) = ROW IN LANDING GEAR INPUT DATA SET
185      C      CALL BLNDOR TO SETUP DESIGN DATA FOR USE IN LANDING GEAR
186      C      MODULE ROUTINE LANDOR
187      C      0 ARRAY = RECORD 25
188      C
189      IF(1H1SC(24)) 70,70,80
190      C
191      70 CALL BLNDOR
192      C
193      C      *****
194      C
195      80 CONTINUE
196      C
197      END
198      C
199      C      *****
200      C      SUBROUTINE ANDATA
201      C      *****
202      C
203      C      SUBROUTINE ANDATA
204      C      WRITTEN 24 JULY 1978
205      C      TO DEVELOP TOTAL VEHICLE HEIGHT, CG, AND INERTIA DATA
206      C
207      COMMON TCON(4320)
208      COMMON /IPRINT/ IP(80)
209      C
210      DIMENSION B(700),GD(700),GV(2320),S(400),ND(200)
211      C
212      DIMENSION GDH(50),GDH(40),GDV(40)

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01/05/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
013		DIMENSION DATS(48)	
014	C		
015		DIMENSION DWH(30),DWH(30),DWH(440),DWH(150),DWH(1000)	
016		DIMENSION Z0(20),HBAR(20),U17(20),U12(20)	
017		DIMENSION SFN(10),U17N(10),U12N(10),HBN(10)	
018		DIMENSION MFUS(20)	
019		DIMENSION MFC(120),MFC2(20),MFC3(20)	
020	C		
021		EQUIVALENCE (D(1),TCOM(1)),(D(1),TCOM(70)),(D(1),TCOM(140)),	
022		I (S(1),TCOM(370)),(D(1),TCOM(121))	
023	C		
024		EQUIVALENCE (DDH(1),DD(25)),(DDH(1),DD(30)),(DDV(1),DD(34))	
025	C		
026		EQUIVALENCE (DATS(1),DD(46))	
027	C		
028		EQUIVALENCE (DWH(1),DV(37)),(DWH(1),DV(40)),(DWH(1),DV(43)),	
029		I (DWH(1),DV(87)),(DWH(1),DV(121))	
030	C		
031		EQUIVALENCE (Z0(1),DWB(1)),(HBAR(1),DWB(14)),	
032		I (U17(1),DWB(40)),(U12(1),DWB(21))	
033	C		
034		EQUIVALENCE (SFN(1),DWH(7)),(U17N(1),DWH(13)),	
035		I (U12N(1),DWH(14)),(HBN(1),DWH(11))	
036	C		
037		EQUIVALENCE (MFUS(1),DWH(34))	
038	C		
039		EQUIVALENCE (MFC(1),DWH(70)),(MFC(1),DWH(80)),	
040		I (MFC(1),DWH(82))	
041	C		
042		EQUIVALENCE (1TP,ND(11)),(NC,ND(15)),(NCN,ND(119))	
043	C		
044		DD 101 1=1,400	
045		S(1) = D(24)	
046		101 CONTINUE	
047	C		
048	C	SUMMING AND CONTENTS	
049		CALL AVORND	
050	C		
051	C	SUM FUELLAGE AND CONTENTS	
052		J = NC + 1	
053		DD 150 1=1,J	
054		S(32) = S(32) + MFUS(1) + MFC(1)	
055		S(33) = S(33) + MFUS(1)*HBAR(1) + MFC(1)*HBAR(1)	
056		S(34) = S(34) + MFUS(1) + MFC(1)	
057		S(35) = S(35) + MFUS(1)*HBAR(1) + MFC(1)*HBAR(1)	
058		S(36) = S(36) + MFUS(1) + MFC(1)	
059		S(37) = S(37) + MFUS(1)*HBAR(1) + MFC(1)*HBAR(1)	
060		S(83) = S(83) + MFUS(1)*Z0(1) + MFC(1)*Z0(1)	
061		S(84) = S(84) + MFUS(1)*Z0(1) + MFC(1)*Z0(1)	
062		S(85) = S(85) + MFUS(1)*Z0(1) + MFC(1)*Z0(1)	
063		150 CONTINUE	
064		S(38) = S(33)/S(32)	
065		S(39) = S(35)/S(34)	
066		S(40) = S(37)/S(36)	
067		S(86) = S(83)/S(32)	
068		S(87) = S(84)/S(34)	
069		S(88) = S(85)/S(36)	
070		S(41) = DWH(221) + DWH(222)	
071		S(42) = DWH(231)	
072	C	BASE INERTIA ON EXPOSED GEOMETRY	
073		S(101) = DWH(8)*D(8)	
074		S(102) = DWH(9) - (D(1) - DWH(8))*DWH(9)/S(101)*DWH(10)	
075		S(43) = DWH(10) + (S(101) - DWH(10))/D(3)	
076		S(44) = S(41)*S(102)**2 + (S(101) - DWH(10))**2/D(3)/D(8)	
077		S(45) = S(41)*S(102)**2 + (S(101) - DWH(10))**2/D(3)/D(8)	
078		S(46) = DWH(241) + DWH(242)	
079		S(47) = DWH(251)	
080		S(103) = DWH(8)*D(12)	
081		S(104) = DWH(4) - (D(1) - DWH(8))*DWH(4)/S(101)*DWH(8)	
082		S(48) = DWH(8) + DWH(8) + (S(101) - DWH(8))/D(3)	
083		S(49) = S(48)*(S(102)**2 + (S(101) - DWH(8))**2/D(3)/D(8)	

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CARD NO      ****      CONTENTS      ****

204          S(50) = S(46)/S(102)**2** (31/010)
205          IF (17P) 200,200,200
206      C      MACELLE MOUNTED - THE HARD MACELLES
207          DO 210 I=1,20
208              S(51) = S(51) + DWHT(I)*200
209              S(52) = S(52) + DWHT(I)*200**2
210      CONTINUE
211          S(53) = S(52)/S(51)
212          S(54) = DATS(14)
213      C      ASSEMBLE HEIGHT TO BE UNIFORMLY DISTRIBUTED ACCORDING TO MACELLE
214      C      NETTED AREA
215          J = NCM - 1
216          DO 220 I=1,J
217              S(63) = S(63) + SFN(I)
218      CONTINUE
219          DO 230 I=1,J
220              S(103) = DATS(13) + NCM(I) - S(53)
221              S(105) = S(105) + S(51)*SFN(I)/S(63)**(UIYN(I) + S(103)**2)
222              S(106) = S(106) + S(51)*SFN(I)/S(63)**(UIZN(I) + S(103)**2)
223      CONTINUE
224          IF (2 - 17P) 240,200,200
225          DO 250 I=1,20
226              S(57) = S(57) + DWHT(I)*300
227              S(58) = S(58) + DWHT(I)*300**2
228      CONTINUE
229          S(59) = S(58)/S(57)
230          S(60) = DATS(17)
231          DO 260 I=1,J
232              S(103) = DATS(16) + NCM(I) - S(59)
233              S(101) = S(101) + S(57)*SFN(I)/S(63)**(UIYN(I) + S(103)**2)
234              S(102) = S(102) + S(57)*SFN(I)/S(63)**(UIZN(I) + S(103)**2)
235      CONTINUE
236      C      ASSEMBLE TOTAL VEHICLE
237          DO 310 S(104) = S(11) + S(32) + S(41) + S(46) + S(51) + S(57)
238              S(105) = S(12) + S(33) + S(41)*S(42) + S(46)*S(47) + S(52) + S(58)
239              S(106) = S(165) - S(12) + S(13)
240              S(107) = S(105)/S(104)
241              S(108) = S(106)/S(104)
242              S(109) = S(6) + S(34) + S(41) + S(46) + S(51) + S(57)
243              S(170) = S(7) + S(35) + S(41)*S(42) + S(46)*S(47) + S(52) + S(58)
244              S(171) = S(170) - S(7) + S(8)
245              S(172) = S(170)/S(100)
246              S(173) = S(171)/S(100)
247      C      LANDING DESIGN HEIGHT WINDS FORWARD OR FIXED
248          S(100) = S(111) + S(36) + S(41) + S(46) + S(51) + S(57)
249          S(101) = S(113) + S(37) + S(41)*S(42) + S(46)*S(47) + S(52) + S(58)
250          S(102) = S(101)/S(100)
251          S(107) = S(111)*NCM(11) + S(103) + S(41)*NCM(11) + S(46)*S(46) +
252          I S(51)*DATS(15) + S(57)*DATS(10)
253          S(108) = S(107)/S(104)
254          S(109) = S(101)*NCM(11) + S(104) + S(41)*NCM(11) + S(46)*S(46) +
255          I S(51)*DATS(15) + S(57)*DATS(10)
256          S(100) = S(100)/S(100)
257          S(101) = S(111)*NCM(11) + S(105) + S(41)*NCM(11) + S(46)*S(46) +
258          I S(51)*DATS(15) + S(57)*DATS(10)
259          S(102) = S(101)/S(100)
260      C      DEVELOP VEHICLE INERTIA AT FCOM START WITH FUELAGE
261          J = NC + 1
262          DO 310 I=1,J
263              S(174) = S(174) + MFUS(I) + MFC2(I)**(UIV(I) +
264              I (S(172) - NCM(I))**2 + (20(I) - S(100))**2)
265              S(175) = S(175) + MFUS(I) + MFC2(I)**(UIV(I) +
266              I (S(173) - NCM(I))**2 + (20(I) - S(100))**2)
267              S(176) = S(176) + MFUS(I) + MFC2(I)**(UIZ(I) +
268              I (S(172) - NCM(I))**2)
269              S(177) = S(177) + MFUS(I) + MFC2(I)**(UIZ(I) +
270              I (S(173) - NCM(I))**2)
271              S(100) = S(103) + MFUS(I) + MFC2(I)**(UIV(I) +
272              I (S(100) - NCM(I))**2 + (20(I) - S(100))**2)
273              S(104) = S(104) + MFUS(I) + MFC2(I)**(UIV(I) +
274              I (S(100) - NCM(I))**2 + (20(I) - S(100))**2)

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01/05/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      *****      CONTENTS      *****

355          S(05) = S(05) + IMFUS(1) * WFC(111)*U(1211) +
356          I (S(05) - REAR(111)**2)
357          S(05) = S(05) + IMFUS(1) * WFC(111)*U(1211) +
358          I (S(05) - REAR(111)**2)
359      310 CONTINUE
360      C      -----
361      C      ADD OTHER COMPONENTS
362      CALL ANOADC
363      C      -----
364      CALL ANOINR
365      DWNT(044) = S(04)
366      DWNT(045) = S(07)
367      DWNT(046) = S(08)
368      DWNT(047) = S(09)
369      DWNT(048) = S(03)
370      DWNT(050) = S(05)
371      DWNT(051) = S(06)
372      DWNT(052) = S(70)
373      DWNT(053) = S(73)
374      DWNT(054) = S(100)
375      DWNT(057) = S(74)
376      DWNT(058) = S(75)
377      DWNT(059) = S(76)
378      DWNT(060) = S(77)
379      DWNT(061) = S(80)
380      DWNT(063) = S(82)
381      DWNT(064) = S(102)
382      DWNT(066) = S(04)
383      DWNT(067) = S(05)
384      DWNT(068) = S(14)
385      DWNT(069) = S(12)
386      DWNT(070) = S(13)
387      DWNT(072) = S(14)
388      DWNT(073) = S(45) + S(14)*S(14)**2
389      DWNT(074) = S(51)
390      DWNT(075) = S(53)
391      DWNT(077) = S(55)
392      DWNT(078) = S(56)
393      DWNT(079) = S(57)
394      DWNT(080) = S(58)
395      DWNT(082) = S(01)
396      DWNT(083) = S(02)
397      C
398      IF (P(140)15001,5001,5002
399      5001 CONTINUE
400      WRITE (0,4001) (S(1),S(1+1),S(1+2),S(1+3),S(1+4),I=1,105,5)
401      400 FORMAT(10H) S(I) FROM ANODATA,712,21H** ANODATA - (P(140) **
402      I (110, 5710 4))
403      5002 CONTINUE
404      C
405      RETURN
406      END
407      C
408      C *****
409      C      SUBROUTINE ANOADC
410      C *****
411      C
412      SUBROUTINE ANOADC
413      C
414      C ADD OTHER COMPONENTS
415      C      SEPARATED FROM ANODATA BECAUSE OF COMPILER TROUBLES
416      C
417      COMMON TCOM(4320)
418      C
419      DIMENSION D(700),GD(700),DV(8320),S(1400),ND(200)
420      DIMENSION GDH(90),GDH(140),GDV(140)
421      DIMENSION BATS(140)
422      C
423      EQUIVALENCE(D(1),TCOM(1)),(GD(1),TCOM(70)),(DV(1),TCOM(140)),
424      I (S(1),TCOM(370)),I(ND(1),TCOM(4321))
425      C MARKING TEMPORARY FOR SQUARES OF X DISTANCES TO NEW CO.

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CARD NO          ****          CONTENTS          ****

426      EQUIVALENCE (GDH(1),GD(251),GDH(1),GD(301),GDV(1),GD(341))
427      EQUIVALENCE (DATS(1),GD(401))
428      EQUIVALENCE (XAH,S(110)), (XAH,S(111)), (XAH,S(112)),
429      1 (XAH,S(113)), (XAH,S(114))
430      EQUIVALENCE      (YAH,S(115)), (YAH,S(116)),
431      1 (YAH,S(117)), (YAH,S(118))
432      EQUIVALENCE (ZAH,S(119)), (ZAH,S(120)), (ZAH,S(121)),
433      1 (ZAH,S(122)), (ZAH,S(123))
434      EQUIVALENCE (X,S(124)), (Z,S(125)), (H,S(126))
435      C
436      C 10Y SUM OF HORIZONTAL, VERTICAL, MAC ID., MAC OD
437      S(70) = S(44) + S(40) + S(95) + S(61)
438      C 10Z SUM OF H.V.MI,MO
439      S(70) = S(45) + S(50) + S(56) + S(62)
440      YAH = S(43)**2
441      YAV = GDV(7)**2
442      YAH1 = S(54)**2
443      YAH2 = S(60)**2
444      C -----
445      C      BTDM WITH WINDS AFT
446      N=1
447      X = S(70)
448      Z = S(100)
449      M = S(24)
450      10 XAH = (X-M)**2
451      XAH = (X-S(42))**2
452      XAV = (X-S(47))**2
453      XAH1 = (X-S(53))**2
454      XAH2 = (X-S(59))**2
455      ZAH = (Z-GDH(1))**2
456      ZAH = (Z-GDH(1))**2
457      ZAV = (Z-S(46))**2
458      ZAH1 = (Z-DATS(15))**2
459      ZAH2 = (Z-DATS(16))**2
460      OD TO (20,30,40,50),N
461      C 1TV
462      20 S(74) = S(74) + S(70) + S(10) + S(61)*(XAH+ZAH) + S(41)*(XAH+ZAH)
463      1      + S(46)*(XAH+ZAV) + S(51)*(XAH1+ZAH1) + S(57)*(XAH2+ZAH2)
464      C 12Z
465      S(75) = S(75) + S(70) + S(10) + S(61)*XAH
466      1      + S(41)*(XAH + YAH) + S(46)*(XAV + YAV)
467      2      + S(51)*(XAH1 + YAH1) + S(57)*(XAH2 + YAH2)
468      C -----
469      C      BTDM WITH WINDS FORWARD
470      N=2
471      X = S(73)
472      M = S(25)
473      OD TO 10
474      C 1TV
475      20 S(76) = S(76) + S(70) + S(17) + S(61)*(XAH+ZAH) + S(41)*(XAH+ZAH)
476      1      + S(46)*(XAH+ZAV) + S(51)*(XAH1+ZAH1) + S(57)*(XAH2+ZAH2)
477      C 12Z
478      S(77) = S(77) + S(70) + S(10) + S(61)*XAH
479      1      + S(41)*(XAH + YAH) + S(46)*(XAV + YAV)
480      2      + S(51)*(XAH1 + YAH1) + S(57)*(XAH2 + YAH2)
481      C -----
482      C      MAXIMUM DESIGN HEIGHT WITH WINDS FORWARD
483      C TAKE OFF CROSS HEIGHT WITH WIND FLD
484      N=3
485      X = S(80)
486      Z = S(80)
487      M = S(21)
488      OD TO 10
489      C 1TV
490      20 S(83) = S(83) + S(70) + S(80) + S(11)*(XAH+ZAH) + S(41)*(XAH+ZAH)
491      1      + S(46)*(XAH+ZAV) + S(51)*(XAH1+ZAH1) + S(57)*(XAH2+ZAH2)
492      C 12Z
493      S(84) = S(84) + S(70) + S(81) + S(11)*XAH
494      1      + S(41)*(XAH + YAH) + S(46)*(XAV + YAV)
495      2      + S(51)*(XAH1 + YAH1) + S(57)*(XAH2 + YAH2)
496      C -----

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01/08/74 INPUT LISTING AUTOFLY CHART SET - SHEEP DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

487 C          LANDING DESIGN HEIGHT WITH WINDS FORWARD
488      1000
489      X = S(100)
490      Z = S(102)
491      W = S(120)
492      GO TO 10
493 C 177
494      SO S(94) = S(94) + S(70) + S(100) + S(111)*(XAW+ZAW) + S(91)*(XAW+ZAW)
495      1      + S(96)*(XAW+ZAW) + S(51)*(XAW+ZAW) + S(57)*(XAW+ZAW)
496 C 122
497      S(100) = S(100) + S(70) + S(102) + S(111)*XAW
498      1      + S(91)*(XAW + YAW) + S(96)*(XAW + YAW)
499      2      + S(51)*(XAW) + YAW) + S(57)*(XAW + YAW)
500      GOO RETURN
501      END
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01/08/74      INPUT LISTING      AUTOFLW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CASE NO      *****      COMMENTS      *****

000      RT(7) = S(73)
001      RT(8) = S(88)
070      RT(18) = S(88)
071      RT(9) = S(82)
072      C TOTAL HAS ZERO VCS(11 THRU 19), AND TIXI(21 THRU 29)
073      RT(16) = S(100)
074      RT(17) = S(100)
075      RT(18) = S(88)
076      RT(20) = S(88)
077      RT(19) = S(102)
078      RT(26) = S(74)
079      RT(27) = S(75)
080      RT(28) = S(83)
081      RT(30) = S(83)
082      RT(29) = S(84)
083      RT(31) = S(78)
084      RT(32) = S(77)
085      RT(33) = S(85)
086      RT(35) = S(86)
087      RT(34) = S(85)
088      C .....
089      C BASIC MIND STORED IN RM FIRST, COMPONENTS ADDED IF NECESSARY
090      RM(1) = S(6)
091      RM(2) = S(6)
092      RM(3) = S(1)
093      RM(5) = S(1)
094      RM(4) = S(11)
095      RM(6) = S(24)
096      RM(7) = S(25)
097      RM(8) = S(21)
098      RM(10) = S(21)
099      RM(9) = S(28)
100      RM(11) = S(26)
101      RM(12) = S(27)
102      RM(13) = S(23)
103      RM(15) = S(23)
104      RM(14) = S(31)
105      RM(16) = QDM(11)
106      RM(17) = QDM(11)
107      RM(18) = QDM(11)
108      RM(19) = QDM(11)
109      RM(20) = QDM(11)
110      RM(26) = S(16)
111      RM(27) = S(17)
112      RM(31) = S(18)
113      RM(32) = S(19)
114      RM(29) = S(88)
115      RM(30) = S(88)
116      RM(33) = S(81)
117      RM(36) = S(81)
118      RM(28) = S(88)
119      RM(34) = S(82)
120      C .....
121      VCS = QDM(7)
122      C HORIZONTAL CONSTANT FOR ALL 9 CONDITIONS
123      DO 40 N=1,9
124      RM(N) = S(41)
125      RM(N+5) = S(42)
126      RM(N+10) = S(43)
127      RM(N+15) = QDM(11)
128      RM(N+25) = S(44)
129      RM(N+30) = S(45) + S(41)*S(43)*.42
130      40 CONTINUE
131      C .....
132      C VERTICAL - IF ON PUS. PUT IN RV, IF ON MIND MUST ADD IN
133      IF(QDM(30)) 00,00,00
134      DO 60 N=1,9
135      RV(N) = S(46)
136      RV(N+5) = S(47)
137      RV(N+10) = VCS
138      RV(N+15) = S(48)

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01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
030	RVIN=25) = S(49)		
040	RVIN=30) = S(50)		
041	05 CONTINUE		
042	00 TO 100		
043	C VERTICAL ON WING		
044	00 DO 05 N=1,5		
045	MT = RM(N) * S(46)		
046	XCO = (RM(N) * RM(N+5) + S(46) * S(47)) / MT		
047	YCO = (RM(N) * RM(N+10) + S(46) * VCO) / MT		
048	ZCO = (RM(N) * RM(N+15) + S(46) * S(48)) / MT		
049	RM(N+25) = RM(N+25) + S(49) * RM(N) * ((RM(N+5) - XCO)**2 + (RM(N+15)		
050	- ZCO)**2) + S(46) * ((S(47) - XCO)**2 + (S(48) - ZCO)**2)		
051	RM(N+30) = RM(N+30) + (.50) * RM(N) * ((RM(N+5) - XCO)**2)		
052	I + S(46) * ((S(47) - XCO)**2 + VCO**2)		
053	RM(N) = MT		
054	RM(N+5) = XCO		
055	RM(N+10) = YCO		
056	RM(N+15) = ZCO		
057	05 CONTINUE		
058	C -----		
059	C		
060	C IF AIR INDUCTION SYSTEM ON FUSELAGE (00(17)=-) ON WING (=0)		
061	C TEST FOR MACELLES. DATS(1) = NUMBER OF MACELLES		
062	100 IF (DATS(1) 150,150,102		
063	C MACELLE TYPE		
064	102 IF (00(17)) 104,120,104		
065	104 DO 110 N=1,5		
066	RAIN) = S(51)		
067	RAIN+5) = S(53)		
068	RAIN+10) = S(54)		
069	RAIN+15) = DATS(1)		
070	RAIN+25) = S(55)		
071	RAIN+30) = S(56) + S(51) * S(54)**2		
072	110 CONTINUE		
073	00 TO 150		
074	C		
075	C WING MOUNTED, TEST NUMBER		
076	120 IF (DATS(1) - 0(3)) 122,122,124		
077	C TWO MACELLES		
078	122 MT = S(51)		
079	XCO = S(53)		
080	YCO = S(54)		
081	ZCO = DATS(15)		
082	S(116) = S(95)		
083	S(117) = S(56) + S(51) * S(54)**2		
084	00 TO 130		
085	C FOUR MACELLES		
086	124 MT = S(51) + S(57)		
087	XCO = (S(52) + S(58)) / MT		
088	YCO = (S(51) * S(54) + S(57) * S(60)) / MT		
089	ZCO = (S(51) * DATS(15) + S(57) * DATS(10)) / MT		
090	S(118) = (S(53) - XCO)**2		
091	S(119) = (S(54) - YCO)**2		
092	S(120) = (DATS(15) - ZCO)**2		
093	S(121) = (DATS(10) - ZCO)**2		
094	S(116) = S(95) + S(61) + S(51) * (S(118) + S(120)) +		
095	I S(57) * (S(119) + S(121))		
096	S(117) = S(56) + S(62) + S(51) * (S(118) + S(54)**2) +		
097	I S(57) * (S(119) + S(60)**2)		
098	130 DO 140 N=1,5		
099	S(118) = RM(N) * MT		
100	S(119) = (RM(N) * RM(N+5) + MT * XCO) / S(118)		
101	S(120) = (RM(N) * RM(N+10) + MT * YCO) / S(119)		
102	S(121) = (RM(N) * RM(N+15) + MT * ZCO) / S(118)		
103	S(124) = (RM(N+5) - S(118))**2		
104	S(125) = (XCO - S(119))**2		
105	S(126) = (RM(N+15) - S(121))**2		
106	S(127) = (ZCO - S(121))**2		
107	RM(N+25) = RM(N+25) + S(116) * RM(N) * (S(124) + S(126)) +		
108	I MT * (S(125) + S(127))		
109	RM(N+30) = RM(N+30) + S(117) * RM(N) * S(124) + MT * S(125)		

01/00/74	INPUT LISTING	AUTOFLON CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
710	RM(N) = S(110)		
711	RM(N+5) = S(110)		
712	RM(N+10) = S(120)		
713	RM(N+15) = S(121)		
714	140 CONTINUE		
715	C SPACE FOR OTHER		
716	150 CONTINUE		
717	C		
718	DO 100 N=1,400		
719	100 FUSM(N) = 0.0		
720	C		
721	DO 170 N=1,42		
722	M = 191 + (N-1)*5		
723	FUSM(N) = S(M)		
724	FUSM(N+50) = S(M+1)		
725	FUSM(N+100) = S(M+2)		
726	FUSM(N+270) = S(M+3)		
727	170 FUSM(N+350) = S(M+4)		
728	C		
729	DO 100 N=51,70		
730	I = N - 50		
731	FUSM(N) = WFC(I)		
732	FUSM(N+50) = WFC(I)		
733	FUSM(N+100) = WFC(I)		
734	FUSM(N+270) = WFC(I)		
735	100 FUSM(N+350) = WFC(I)		
736	C		
737	DO 100 N=71,90		
738	I = N - 70		
739	FUSM(N) = WFS(I)		
740	FUSM(N+50) = WFS(I)		
741	FUSM(N+100) = WFS(I)		
742	FUSM(N+270) = WFS(I)		
743	100 FUSM(N+350) = WFS(I)		
744	C		
745	DO 200 N=1,10		
746	FUSM(N+450) = ALT(N)		
747	FUSM(N+460) = VL(N)		
748	200 FUSM(N+470) = GL(N)		
749	C		
750	C CHECK PRINT		
751	C		
752	IF(IP(45))5001,5001,5002		
753	5001 CONTINUE		
754	WRITE (5,300) RT,RM,RV,RA,RO		
755	300 FORMAT(1M,20CHECK PRINT FOR AVOIDNR,BKX,21M** AVOIDNR - (P(45) **, //SHORT, SE10.0/0(3X,SE10.0/)		
756	1 /SHORT, SE10.0 / 0(3X,SE10.0/) /SHORT, SE10.0 /0(3X,SE10.0 /)		
757	2 /SHORT, SE10.0 / 0(3X,SE10.0/) /SHORT, SE10.0 /0(3X,SE10.0 /)		
758	3 /SHORT, SE10.0 / 0(3X,SE10.0/)		
759	5002 CONTINUE		
760	C		
761	C		
762	C		
763	C		
764	CALL WRTHS(1,FUSM(1),400,34)		
765	C		
766	C		
767	C		
768	RETURN		
769	END		
770	C		
771	C		
772	C		
773	C		
774	C		
775	C		
776	C		
777	C		
778	C		
779	C		
780	C		
781	C		
782	C		
783	C		
784	C		
785	C		
786	C		
787	C		
788	C		
789	C		
790	C		
791	C		
792	C		
793	C		
794	C		
795	C		
796	C		
797	C		
798	C		
799	C		
800	C		
801	C		
802	C		
803	C		
804	C		
805	C		
806	C		
807	C		
808	C		
809	C		
810	C		
811	C		
812	C		
813	C		
814	C		
815	C		
816	C		
817	C		
818	C		
819	C		
820	C		
821	C		
822	C		
823	C		
824	C		
825	C		
826	C		
827	C		
828	C		
829	C		
830	C		
831	C		
832	C		
833	C		
834	C		
835	C		
836	C		
837	C		
838	C		
839	C		
840	C		
841	C		
842	C		
843	C		
844	C		
845	C		
846	C		
847	C		
848	C		
849	C		
850	C		
851	C		
852	C		
853	C		
854	C		
855	C		
856	C		
857	C		
858	C		
859	C		
860	C		
861	C		
862	C		
863	C		
864	C		
865	C		
866	C		
867	C		
868	C		
869	C		
870	C		
871	C		
872	C		
873	C		
874	C		
875	C		
876	C		
877	C		
878	C		
879	C		
880	C		
881	C		
882	C		
883	C		
884	C		
885	C		
886	C		
887	C		
888	C		
889	C		
890	C		
891	C		
892	C		
893	C		
894	C		
895	C		
896	C		
897	C		
898	C		
899	C		
900	C		
901	C		
902	C		
903	C		
904	C		
905	C		
906	C		
907	C		
908	C		
909	C		
910	C		
911	C		
912	C		
913	C		
914	C		
915	C		
916	C		
917	C		
918	C		
919	C		
920	C		
921	C		
922	C		
923	C		
924	C		
925	C		
926	C		
927	C		
928	C		
929	C		
930	C		
931	C		
932	C		
933	C		
934	C		
935	C		
936	C		
937	C		
938	C		
939	C		
940	C		
941	C		
942	C		
943	C		
944	C		
945	C		
946	C		
947	C		
948	C		
949	C		
950	C		
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961	C		
962	C		
963	C		
964	C		
965	C		
966	C		
967	C		
968	C		
969	C		
970	C		
971	C		
972	C		
973	C		
974	C		
975	C		
976	C		
977	C		
978	C		
979	C		
980	C		
981	C		
982	C		
983	C		
984	C		
985	C		
986	C		
987	C		
988	C		
989	C		
990	C		
991	C		
992	C		
993	C		
994	C		
995	C		
996	C		
997	C		
998	C		
999	C		
1000	C		


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CARD NO      ****      CONTENTS      ****

701          DIMENSION      UZ(12),MWT(12),MWT2(12),MWT3(12),
702          1 XB1(12),XB2(12),YB1(12),YB2(12),XB2(12),XB2(12),
703          2 YB12(12),YB22(12),XB13(12),XB23(12),YB13(12),YB23(12),
704          3 YY12(12),YY22(12),YY21(12),YY23(12)
705          C
706          EQUIVALENCE (D(1),TCOH(1),I0D(1),TCOH(701),DV(1),TCOH(1401),
707          1 (S(1),TCOH(3721),IND(1),TCOH(4121))
708          EQUIVALENCE (DWT(1),DV(121))
709          EQUIVALENCE (UZ(1),DWT(461))
710          1 (MWT(1),DWT(497)),(MWT2(1),DWT(521)),(MWT3(1),DWT(545)),
711          2 (XB1(1),DWT(569)),(XB2(1),DWT(583)),(YB1(1),DWT(593)),
712          3 (YB2(1),DWT(605)),(XB12(1),DWT(617)),(XB22(1),DWT(629)),
713          4 (YB12(1),DWT(641)),(YB22(1),DWT(653)),(XB13(1),DWT(665)),
714          5 (XB23(1),DWT(677)),(YB13(1),DWT(689)),(YB23(1),DWT(701)),
715          6 (YY12(1),DWT(713)),(YY22(1),DWT(725)),(YY21(1),DWT(737)),
716          7 (YY23(1),DWT(749))
717          C
718          C SUMMING AND CONTENTS
719          DO 105 I=1,12
720          S(1) = S(1) + MWT(1)
721          S(2) = S(2) + MWT(1)*XB1(1)
722          S(3) = S(3) + MWT(1)*XB2(1)
723          S(4) = S(4) + MWT(1)*YB1(1)
724          S(5) = S(5) + MWT(1)*YB2(1)
725          S(6) = S(6) + MWT2(1)
726          S(7) = S(7) + MWT2(1)*XB2(1)
727          S(8) = S(8) + MWT2(1)*XB22(1)
728          S(9) = S(9) + MWT2(1)*XB2(1)
729          S(10) = S(10) + MWT2(1)*YB22(1)
730          S(11) = S(11) + MWT3(1)
731          S(12) = S(12) + MWT3(1)*XB13(1)
732          S(13) = S(13) + MWT3(1)*XB23(1)
733          S(14) = S(14) + MWT3(1)*YB13(1)
734          S(15) = S(15) + MWT3(1)*YB23(1)
735          S(16) = S(16) + YY12(1)
736          S(17) = S(17) + YY22(1)
737          S(18) = S(18) + MWT(1)*UZ(1)
738          S(00) = S(00) + YY21(1)
739          S(00) = S(00) + YY23(1)
740          S(01) = S(01) + MWT(1)*UZ(1)
741          S(02) = S(02) + MWT3(1)*UZ(1)
742          105 CONTINUE
743          S(18) = S(18)
744          S(20) = S(2)/S(1)
745          S(21) = S(3)/S(1)
746          S(22) = S(4)/S(1)
747          S(23) = S(5)/S(1)
748          S(24) = S(7)/S(6)
749          S(25) = S(8)/S(6)
750          S(26) = S(9)/S(6)
751          S(27) = S(10)/S(6)
752          S(28) = S(12)/S(11)
753          S(29) = S(13)/S(11)
754          S(30) = S(14)/S(11)
755          S(31) = S(15)/S(11)
756          DO 110 I=1,12
757          S(18) = S(18) + MWT2(1)*(S(24) - XB12(1)**2)
758          S(17) = S(17) + MWT2(1)*(S(25) - XB22(1)**2)
759          S(18) = S(18) + MWT2(1)*(S(24) - XB12(1)**2 + YB12(1)**2)
760          S(18) = S(18) + MWT2(1)*(S(25) - XB22(1)**2 + YB22(1)**2)
761          S(00) = S(00) + MWT(1)*(S(21) - XB2(1)**2)
762          S(00) = S(00) + MWT3(1)*(S(29) - XB23(1)**2)
763          S(01) = S(01) + MWT(1)*(S(21) - XB2(1)**2 + YB2(1)**2)
764          S(02) = S(02) + MWT3(1)*(S(29) - XB23(1)**2 + YB23(1)**2)
765          110 CONTINUE
766          RETURN
767          END
768          C
769          C
770          C SUBROUTINE CONDST
771          C

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01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
002	C		
003		SUBROUTINE CONOST	
004	C	WRITTEN 7 JULY 1972	
005	C	TO DISTRIBUTE FUELAGE CONTENTS	
006		COMMON TCON(4320)	
007		DIMENSION D(700),DD(700),DV(2320),S(400),ND(200)	
008		DIMENSION EQU(200)	
009		DIMENSION DD(120),DDAT(100),DDO(80),DATS(40),DATD(70)	
010		DIMENSION DWH(50),DWH(30),DWH(30),DWT(500)	
011		EQUIVALENCE (D(1),TCON(1)),(D(11),TCON(70)),(DV(1),TCON(140)),	
012		I (S(1),TCON(137)),(ND(1),TCON(412))	
013		EQUIVALENCE (EQU(1),D(8))	
014		EQUIVALENCE (DD(1),DD(1)),(DDAT(1),DD(8)),(DDO(1),DD(30)),	
015		I (DATS(1),DD(40)),(DATD(1),DD(50))	
016		EQUIVALEND = (DWH(1),DV(32)),(DWH(1),DV(37)),(DWH(1),DV(40)),	
017		I (DWT(1),DV(112))	
018		EQUIVALENCE = (J,ND(102)),(K,ND(103)),(L,ND(104))	
019		EQUIVALENCE (MCO,ND(117))	
020		10 FORMAT(200)*** WARNING FROM CONOST *** /	
021		I 20X,3XPREVIOUS FUEL AND AFT LIMITS HERE, 2F10.2/	
022		230X,F12.7,17H LBS AT FUS. STA.,F8.2,10X,2INDISTRIBUTED BY DSTHOR	
023	C	STORE OPERATIONAL WEIGHT EMPTY DISTRIBUTION IN DWT(351-360)	
024	C	MAIN GEAR	
025		IF(DWT(102)) 110,110,101	
026		101 S(1) = DWT(102)	
027		S(2) = DWT(142)	
028		CALL DSTHOR	
029		DO 103 I=J,K	
030		DWT(1+350) = DWT(1+350) + S(1+20)	
031		103 CONTINUE	
032	C	NONE GEAR	
033		110 S(1) = DWT(103)	
034		S(2) = DWT(143)	
035		CALL DSTHOR	
036		DO 115 I=J,K	
037		DWT(1+350) = DWT(1+350) + S(1+20)	
038		115 CONTINUE	
039	C	SURFACE CONTROLS	
040		IF(DWT(104)) 127,127,117	
041		117 S(1) = DWT(104)	
042		S(2) = DWT(144)	
043		CALL DSTHOR	
044		DO 120 I=J,K	
045		DWT(1+350) = DWT(1+350) + S(1+20)	
046		120 CONTINUE	
047	C	DISTRIBUTE SURFACE CONTROLS USING A TRAPEZOIDAL DISTRIBUTION	
048		S(1) = DWT(105)	
049		S(2) = DWT(145)	
050		S(3) = DWT(144)	
051		S(4) = APMX(DWH(43),DWH(24),DWH(24))	
052		S(5) = (S(4)-S(3))/D(3)	
053		IF((S(2)-S(3)) - S(5)) 123,121,121	
054		121 IF((S(4)-S(2)) - S(5)) 123,122,122	
055		122 CALL DSTHOR	
056		GO TO 125	
057		123 CALL DSTHOR	
058		WRITE(6, 10) S(3),S(4),S(1),S(2)	
059		WRITE(6,124)	
060		124 FORMAT(10X,10X,10X,SURFACE CONTROLS)	
061		125 DO 126 I=J,K	
062		DWT(1+350) = DWT(1+350) + S(1+20)	
063		126 CONTINUE	
064	C	OTHER STRUCTURE	
065		127 IF(DWT(106)) 130,130,120	
066		120 S(1) = DWT(106)	
067		S(2) = DWT(146)	
068		CALL DSTHOR	
069		DO 129 I=J,K	
070		DWT(1+350) = DWT(1+350) + S(1+20)	
071		129 CONTINUE	
072	C	FUEL SYSTEM	

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CARD NO      *****
003          130 IF(DWMT(107)) 130,130,131
004          C          WHEN DWMT(107)=0.0 THERE IS NO FUEL IN FUSELAGE
005          131 S(1) = DWMT(107)
006              S(2) = DWMT(147)
007              S(4) = MAX(DWMT(110),DWMT(112),DWMT(114),DWMT(116),DWMT(118))
008              S(3) = S(4)
009              DO 132 I=1,0,2
010              F(DWMT(1+100),EQ,D(2+100) TO 132
011              IF(S(3).GT,DWMT(1+100)+S(3)-DWMT(1+100)
012          132 CONTINUE
013              S(5) = (S(4)-S(3))/D(3)
014              IF( (S(2)-S(3)) - S(5) ) 135,133,133
015          133 IF( (S(4)-S(2)) - S(5) ) 135,134,134
016          134 CALL DSTTRP
017              GO TO 137
018          135 CALL DSTHOR
019              WRITE(6, 10) S(3),S(4),S(1),S(2)
020              WRITE(6,130)
021          136 FORMAT(1H*,2X,11H FUEL SYSTEM)
022          137 DO 138 I=J,K
023              DWMT(1+350) = DWMT(1+350) + S(1+20)
024          138 CONTINUE
025          C      ENGINE CONTROLS
026          139 IF(DWMT(100)) 140,140,140
027          140 S(1) = DWMT(100)
028              S(2) = DWMT(140)
029              S(3) = DWMT(144)
030              S(4) = DWMT(60)
031              IF(DATS(1)) 146,146,142
032          142 IF(DD(17)) 144,144,146
033          144 S(4) = DWMT(43)
034          146 S(5) = (S(4)-S(3))/D(3)
035              IF( (S(2)-S(3)) - S(5) ) 1463,1461,1461
036          1461 IF( (S(4)-S(2)) - S(5) ) 1463,1462,1462
037          1462 CALL DSTTRP
038              GO TO 1465
039          1463 CALL DSTHOR
040              WRITE(6, 10) S(3),S(4),S(1),S(2)
041              WRITE(6,140)
042          1464 FORMAT(1H*,2X,15H ENGINE CONTROLS)
043          1465 DO 146 I=J,K
044              DWMT(1+350) = DWMT(1+350) + S(1+20)
045          146 CONTINUE
046          C      AUXILIARY POWER UNIT
047          148 IF(DWMT(109)) 150,150,150
048          150 S(1) = DWMT(109)
049              S(2) = DWMT(148)
050              CALL DSTHOR
051              DO 152 I=J,K
052              DWMT(1+350) = DWMT(1+350) + S(1+20)
053          152 CONTINUE
054          C      INSTRUMENTS - BREAK INTO DISTRIBUTED AND CONCENTRATED HEIGHTS
055          160 IF(DWMT(110)) 160,160,161
056          161 S(1) = EQU(130)*DWMT(21)
057              S(2) = DWMT(144)
058              CALL DSTHOR
059              DO 162 I=J,K
060              DWMT(1+350) = DWMT(1+350) + S(1+20)
061          162 CONTINUE
062              S(3) = DWMT(110) - S(1)
063              S(4) = (DWMT(110)*DWMT(150) - S(1)*S(2))/S(3)
064              S(1) = S(3)
065              S(3) = S(2)
066              S(2) = S(4)
067              S(4) = MAX(DWMT(43),DWMT(24),DWMT(24))
068              S(5) = (S(4)-S(3))/D(3)
069              IF( (S(2)-S(3)) - S(5) ) 1623,1621,1621
070          1621 IF( (S(4)-S(2)) - S(5) ) 1623,1622,1622
071          1622 CALL DSTTRP
072              GO TO 163
073          1623 CALL DSTHOR

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01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
004	WRITE(0, 10) S(3),S(4),S(1),S(2)		
005	WRITE(0,1024)		
006	1024 FORMAT(1H,2X,11HINSTRUMENTS)		
007	103 DO 104 I=J,K		
008	DWNT(I+300) = DWNT(I+300) + S(I+20)		
009	104 CONTINUE		
1000	C HYDRAULICS		
1001	105 IF(DWNT(1111)) 171,171,107		
1002	107 S(1) = DWNT(1111)		
1003	S(2) = DWNT(151)		
1004	S(3) = DWNT(144)		
1005	S(4) = MAX(DWNT(43),DWNT(24),DWNT(24))		
1006	S(5) = (S(4)-S(3))/D(13)		
1007	IF (S(2)-S(3)) - S(5) 1 1003,1001,1001		
1008	1001 IF (S(4)-S(2)) - S(5) 1 1003,1002,1002		
1009	1002 CALL GETTRP		
1010	GO TO 100		
1011	1003 CALL GETTRP		
1012	WRITE(0, 10) S(3),S(4),S(1),S(2)		
1013	WRITE(0,1004)		
1014	1004 FORMAT(1H,2X,10HHYDRAULICS)		
1015	100 DO 170 I=J,K		
1016	DWNT(I+300) = DWNT(I+300) + S(I+20)		
1017	170 CONTINUE		
1018	C ELECTRICAL		
1019	171 IF(DWNT(112)) 175,175,172		
1020	172 S(1) = DWNT(112)		
1021	S(2) = DWNT(152)		
1022	S(3) = DWNT(144)		
1023	S(4) = MAX(DWNT(43),DWNT(24),DWNT(24))		
1024	S(5) = (S(4)-S(3))/D(13)		
1025	IF (S(2)-S(3)) - S(5) 1 1733,1731,1731		
1026	1731 IF (S(4)-S(2)) - S(5) 1 1733,1732,1732		
1027	1732 CALL GETTRP		
1028	GO TO 1735		
1029	1733 CALL GETTRP		
1030	WRITE(0, 10) S(3),S(4),S(1),S(2)		
1031	WRITE(0,1734)		
1032	1734 FORMAT(1H,2X,10HELECTRICAL)		
1033	1735 DO 174 I=J,K		
1034	DWNT(I+300) = DWNT(I+300) + S(I+20)		
1035	174 CONTINUE		
1036	C ELECTRONICS		
1037	175 IF(DWNT(113)) 200,200,176		
1038	176 IF(DWNT(153)) 100,100,100		
1039	C TWO COMPARTMENTS		
1040	100 IF(DWNT(151)+DWT(152)) 101,101,102		
1041	101 S(1)=DWT(113)		
1042	S(2)=DWT(153)		
1043	GO TO 105		
1044	102 S(1) = DWNT(113)*(DWT(153) - DWT(151))/(DWT(152) - DWT(151))		
1045	S(2) = DWT(152)		
1046	CALL GETTRP		
1047	DO 104 I=J,K		
1048	DWNT(I+300) = DWNT(I+300) + S(I+20)		
1049	104 CONTINUE		
1050	S(1) = DWNT(113)*(DWT(152) - DWT(151))/(DWT(152) - DWT(151))		
1051	S(2) = DWT(151)		
1052	105 CALL GETTRP		
1053	DO 106 I=J,K		
1054	DWNT(I+300) = DWNT(I+300) + S(I+20)		
1055	106 CONTINUE		
1056	GO TO 200		
1057	C THREE COMPARTMENTS		
1058	100 S(1) = DWNT(113)*EQ(142)		
1059	S(2) = DWT(152)		
1060	CALL GETTRP		
1061	DO 102 I=J,K		
1062	DWNT(I+300) = DWNT(I+300) + S(I+20)		
1063	102 CONTINUE		
1064	S(5) = DWNT(113)*(D(1) - EQ(142))		

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CARD NO	****	CONTENTS	****
1005		$S(5) = (DWT(113)*DWT(153) - DWT(113)*EQU(142)*DWT(152))/S(5)$	
1006		$S(1) = S(5)*S(5) - DWT(151)/(DWT(153) - DWT(151))$	
1007		$S(2) = DWT(153)$	
1008		CALL DSTNDR	
1009		DO 104 I=J,K	
1070		$DWT(1+350) = DWT(1+350) + S(1+20)$	
1071		104 CONTINUE	
1072		$S(1) = S(5)*(DWT(153) - S(5))/(DWT(153) - DWT(151))$	
1073		$S(2) = DWT(151)$	
1074		CALL DSTNDR	
1075		DO 105 I=J,K	
1076		$DWT(1+350) = DWT(1+350) + S(1+20)$	
1077		105 CONTINUE	
1078	C	APPARENT	
1079		200 IF(DWT(114)) 300,300,202	
1080		202 S(1) = DWT(114)	
1081		$S(2) = DWT(154)$	
1082		IF(DWT(124)) 220,220,204	
1083		204 IF(EQU(135)*DWT(114) - EQU(143)) 205,205,206	
1084		205 S(1) = EQU(135)*DWT(114)	
1085		GO TO 207	
1086		206 S(1) = EQU(143)	
1087		207 S(2) = DWT(93)	
1088		CALL DSTNDR	
1089		DO 208 I=J,K	
1090		$DWT(1+350) = DWT(1+350) + S(1+20)$	
1091		208 CONTINUE	
1092		$S(5) = DWT(114) - S(1)$	
1093		$S(2) = (DWT(114)*DWT(154) - S(1) * DWT(93))/S(5)$	
1094		$S(1) = S(5)$	
1095		209 S(3) = DWT(144)	
1096		$S(4) = (S(2)*S(2) - S(3))$	
1097		$S(5) = (S(4)-S(3))/D(3)$	
1098		IF (S(2)-S(3)) - S(5)) 2213,2211,2211	
1099		2211 IF (S(4)-S(2)) - S(5)) 2213,2212,2212	
1100		2212 CALL DUTTRP	
1101		GO TO 2215	
1102		2213 CALL DSTNDR	
1103		WRITE(6, 10) S(3),S(4),S(1),S(2)	
1104		WRITE(6,2214)	
1105		2214 FORMAT(1H,27X,BAPPARENT)	
1106		2215 DO 222 I=J,K	
1107		$DWT(1+350) = DWT(1+350) + S(1+20)$	
1108		222 CONTINUE	
1109	C	FURNISHINGS	
1110		300 IF(DWT(115)) 311,311,301	
1111		301 S(1) = DWT(115)	
1112		$S(2) = DWT(155)$	
1113		$S(3) = DWT(144)$	
1114		$S(4) = (S(2)*S(2) - S(3))$	
1115		IF(D(11)) - D(3)*D(10)) 303,302,302	
1116	C	TRANSPORT	
1117		302 S(4) = DWT(102)	
1118		$S(5) = (S(4)-S(3))/D(3)$	
1119		IF (S(2)-S(3)) - S(5)) 306,304,304	
1120		304 IF (S(4)-S(2)) - S(5)) 306,305,305	
1121		305 CALL DUTTRP	
1122		GO TO 300	
1123		306 CALL DSTNDR	
1124		WRITE(6, 10) S(3),S(4),S(1),S(2)	
1125		WRITE(6,307)	
1126		307 FORMAT(1H,24X,11H,FURNISHINGS)	
1127		308 DO 310 I=J,K	
1128		$DWT(1+350) = DWT(1+350) + S(1+20)$	
1129		310 CONTINUE	
1130	C	AIR CONDITIONING	
1131		311 IF(DWT(116)) 315,315,312	
1132		312 S(1) = DWT(116)	
1133		$S(2) = DWT(156)$	
1134		$S(3) = DWT(144)$	
1135		$S(4) = AWT(1DWT(5),DWT(2),DWT(2),DWT(153))$	

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CARD NO	****	CONTENTS	****
1126		$S(5) = (S(4) - S(3)) / D(3)$	
1127		$IF (S(2) - S(3)) - S(5) \neq 3123, 3121, 3121$	
1128		$3121 \text{ IF } (S(4) - S(2)) - S(5) \neq 3123, 3122, 3122$	
1129		3122 CALL D51TRP	
1130		GO TO 313	
1131		3123 CALL D5THOR	
1132		WRITE(6, 10) S(3), S(4), S(1), S(2)	
1133		WRITE(6, 3124)	
1134		3124 FORMAT(1H, 10X, 10A1R CONDITIONING)	
1135		313 DO 314 I=J,K	
1136		$DWNT(1+350) = DWNT(1+350) + S(1+20)$	
1137		314 CONTINUE	
1138		315 CONTINUE	
1139		DO 419 I=1,10	
1140	C	PHOTOGRAPHIC	
1141	C	AUXILIARY BEAR	
1142	C	OTHER EQUIPMENT	
1143	C	CREW	
1144	C	TRAPPED FUEL	
1145	C	LIQUID NITROGEN	
1146	C	RISC	
1147	C	BLDG	
1148	C	PYLONS	
1149	C	EXTERNAL TANKS	
1150		$IF (DWNT(1+118)) \neq 419, 419, 402$	
1151		$402 \text{ } S(1) = DWNT(1+118)$	
1152		$S(2) = DWNT(1+156)$	
1153		$IF (111 \text{ EQ } 5) \text{ GO TO } 404$	
1154		CALL D5THOR	
1155		GO TO 417	
1156		$404 \text{ } S(4) = MAX(1, DWNT(1+118), DWNT(1+112), DWNT(1+14), DWNT(1+116), DWNT(1+118))$	
1157		$S(3) = S(4)$	
1158		DO 405 I=1, 9, 2	
1159		$IF (DWNT(1+100) \text{ EQ } 0) \text{ GO TO } 405$	
1160		$IF (S(3) \text{ GT } DWNT(1+100)) \text{ THEN } S(3) = DWNT(1+100)$	
1161		405 CONTINUE	
1162		$S(5) = (S(4) - S(3)) / D(3)$	
1163		$IF (S(2) - S(3)) - S(5) \neq 408, 406, 406$	
1164		$406 \text{ IF } (S(4) - S(2)) - S(5) \neq 408, 407, 407$	
1165		407 CALL D51TRP	
1166		GO TO 417	
1167		408 CALL D5THOR	
1168		WRITE(6, 10) S(3), S(4), S(1), S(2)	
1169		WRITE(6, 409)	
1170		409 FORMAT(1H, 23X, 10A1R TRAPPED FUEL)	
1171		417 DO 418 I=J,K	
1172		$DWNT(1+350) = DWNT(1+350) + S(1+20)$	
1173		418 CONTINUE	
1174		419 CONTINUE	
1175	C	TEST FOR MACELLE OR BURIED ENGINE	
1176		$IF (DATA(5(11)) \neq 20, 420, 500$	
1177	C	ENGINE SECTION	
1178		$420 \text{ } S(1) = DWNT(201)$	
1179		$S(2) = DWNT(201)$	
1180		CALL D5THOR	
1181		DO 422 I=J,K	
1182		$DWNT(1+350) = DWNT(1+350) + S(1+20)$	
1183		422 CONTINUE	
1184	C	ENGINE AND EXHAUST SYSTEM	
1185		$S(1) = DWNT(262) + DWNT(266)$	
1186		$S(2) = (DWNT(262) * DWNT(262) + DWNT(266) * DWNT(266)) / S(1)$	
1187		CALL D5THOR	
1188		DO 424 I=J,K	
1189		$DWNT(1+350) = DWNT(1+350) + S(1+20)$	
1190		424 CONTINUE	
1191		$IF (DWNT(263)) \neq 427, 427, 429$	
1192	C	ACCESSORIES AND BEAR BONES	
1193		$429 \text{ } S(1) = DWNT(283)$	
1194		$S(2) = DWNT(283)$	
1195		CALL D5THOR	
1196		DO 428 I=J,K	

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CARD NO      ****      CONTENTS      ****

1207          DWT(1+360) = DWT(1+360) + S(1+20)
1208          426 CONTINUE
1209      C          A I S STRUCTURE
1210          427 S(1) = DWT(204)
1211          S(2) = DWT(204)
1212          S(3) = DATS(13)
1213          S(4) = DATS(13) + DATDINC*10)
1214          S(5) = (S(4)-S(3))/D(3)
1215          IF (S(2)-S(3)) = S(5) : 4203,4201,4201
1216          4201 IF (S(4)-S(2)) = S(5) : 4203,4202,4202
1217          4202 CALL DSTTRP
1218          GO TO 420
1219          4203 CALL DSTNDR
1220          WRITE(6, 10) S(3),S(4),S(1),S(2)
1221          WRITE(6,4204)
1222          4204 FORMAT(1H+,20X,15H+ I S STRUCTURE)
1223          420 DO 430 I=J,K
1224          DWT(1+360) = DWT(1+360) + S(1+20)
1225          430 CONTINUE
1226      C          A I S ACTUATORS AND MECHANISMS
1227          IF(DWT(265)) 435,435,431
1228          431 S(1) = DWT(265)
1229          S(2) = DWT(265)
1230          CALL DSTNDR
1231          DO 434 I=J,K
1232          DWT(1+360) = DWT(1+360) + S(1+20)
1233          434 CONTINUE
1234          435 DO 450 I=1,9
235      C          COILING AND DRAINS
1236      C          LUBRICATION SYSTEMS
1237      C          STARTING SYSTEM
1238      C          A P U
1239      C          INSTRUMENTS
1240      C          HYDRAULICS
1241      C          ELECTRICAL
1242      C          AIR CONDITIONING
1243      C          OIL
1244          IF(DWT(1+266)) 450,450,440
1245          440 S(1) = DWT(1+266)
1246          S(2) = DWT(1+266)
1247          CALL DSTNDR
1248          DO 444 I=J,K
1249          DWT(1+360) = DWT(1+360) + S(1+20)
1250          444 CONTINUE
1251          450 CONTINUE
1252          500 CONTINUE
1253          RETURN
1254          END
1255      C
1256      C
1257      C          SUBROUTINE OILCNT
1258      C
1259      C
1260      C          SUBROUTINE OILCNT
1261      C
1262      C          THIS ROUTINE SETS UP VEHICLE DATA IN BC ARRAY FOR USE
1263      C          IN AIRLOADS MODULE ROUTINE BLCHTL
1264      C
1265      C          COMMON TCON(4320)
1266      C
1267      C          DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
1268      C
1269      C          DIMENSION BC(200)
1270      C
1271      C          DIMENSION OD(20),ODD(30),DATA(40),ODM(90)
1272      C          DIMENSION DWH(50),DWH(30),DWH(30),DWT(1000),ALT(10),WH(10),
1273      C          * VL(10)
1274      C
1275      C          EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(70)),(DV(1),TCON(140))
1276      C          * , (S(1),TCON(372)),(ND(1),TCON(12))
1277      C

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CARD NO	****	CONTENTS	****
1070		GENVALENCE (GD(1),GD(1),GD(1),GD(2),GD(2),GD(2),GD(3),GD(3))	
1070		*, (GD(1),GD(2))	
1080	C		
1081		GENVALENCE (DWH(1),DWH(2),DWH(1),DWH(3),DWH(1),DWH(4))	
1082		*, (DWH(1),DWH(2),ALT(1),DWH(1),WH(1),DWH(1))	
1083		*, (AL(1),DWH(1))	
1084	C		
1085		GENVALENCE (BC(1),DWH(2))	
1086	C		
1087	C	SETUP BC ARROW DATA	
1088		BC(1) = DWH(94)	
1089		BC(2) = DWH(94)	
1090		BC(3) = DWH(94)	
1091		BC(4) = DWH(95)	
1092		BC(5) = DWH(95)	
1093		BC(6) = DWH(95)	
1094		BC(7) = DWH(95)/D(17)/D(26)	
1095		BC(8) = DWH(95)/D(17)/D(26)	
1096		BC(9) = DWH(95)/D(17)/D(26)	
1097		BC(10) = DWH(95)/D(17)/D(26)	
1098		BC(11) = DWH(95)	
1099		BC(12) = DWH(95)	
1100	C		
1101		DO 410 I=1,10	
1102		BC(1+I) = GD(1)	
1103		410 CONTINUE	
1104	C		
1105	C	DO SPEED PROFILE	
1106		J = 5	
1107		K = 7	
1108		IF(GD(10)) 414,414,412	
1109		412 J = GD(10)/D(2) - D(1)	
1110		414 IF(GD(20)) 416,416,416	
1111		416 K = GD(20)/D(2) - D(1)	
1112		418 BC(10) = ALT(J)	
1113		BC(20) = ALT(J)	
1114		BC(21) = ALT(K)	
1115		BC(22) = WH(J)	
1116		BC(23) = WH(J)	
1117		BC(24) = WH(K)	
1118		BC(100) = VL(J)	
1119		BC(107) = VL(J)	
1120		BC(108) = VL(K)	
1121		DO 420 I=1,6	
1122		BC(1+I) = DWH(1+I)	
1123		420 CONTINUE	
1124		BC(31) = GD(17)	
1125		BC(32) = GD(18)	
1126	C		
1127	C	TRANSFER CARRY-OVER LIFT REDUCTION FACTORS	
1128		BC(103) = GD(116)	
1129		BC(104) = GD(117)	
1130		BC(105) = GD(118)	
1131	C		
1132	C	TRANSFER WING GEOMETRY DATA	
1133		DO 430 I=1,21	
1134		BC(1+I) = DWH(1)	
1135		430 CONTINUE	
1136	C		
1137	C	DO FORWARD WING POSITION	
1138		DO 440 I=22,41	
1139		BC(1+I) = DWH(1)	
1140		440 CONTINUE	
1141		BC(100) = GD(37)	
1142		BC(101) = GD(38)	
1143		BC(102) = GD(39)	
1144		BC(103) = GD(40)	
1145	C		
1146	C	TRANSFER HORIZONTAL TAIL DATA	
1147		DO 450 I=1,22	
1148		BC(1+I) = DWH(1)	


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CARD NO      ****      CONTENTS      ****

1400      C*****
1401      C
1402      C      TRANSFER DATA FOR USE IN SURFACE GEOMETRY INPUT DATA
1403      MD(12) = DMAT(044)
1404      MD(13) = DMAT(051)
1405      MD(14) = GDD(11)
1406      C
1407      C*****
1408      C
1409      MD(15) = GDD(13)
1410      C
1411      C*****
1412      C
1413      MD(16) = DDP(15)
1414      MD(17) = GDM(18)
1415      MD(18) = GDM(15)
1416      MD(19) = DMAT(101)/D(2)/MD(3)
1417      IF(GDD(12)) 1003,1003,1002
1418      C
1419      C      VARIABLE SHEEP MINE - TRANSFER PIVOT DATA AND SHEEP ANGLES
1420      1002 MD(10) = GDM(31)
1421      MD(11) = GDM(32) - DMAT(47) - GDM(31)*TAN(DMAT(48)+D(18))
1422      MD(12) = GDM(34)
1423      MD(13) = GDM(33)
1424      1003 MD(14) = DMAT(47)
1425      MD(15) = GDM(1)
1426      MD(16) = GDM(2)
1427      MD(17) = GDM(4)
1428      MD(18) = GDM(3)
1429      MD(19) = GDM(7)+D(2)
1430      IF(GDM(04)) 1010,1010,1005
1431      1005 MD(20) = (DMAT(104) + DMAT(105))/(GDM(04) + GDM(05))
1432      1010 MD(21) = DMAT(103)/D(2)
1433      MD(22) = (DMAT(105) + DMAT(106))/D(2)
1434      MD(23) = D(1)
1435      MD(24) = D(2)
1436      DO 1006 I=1,11
1437      MD(1+24) = DMAT(1+000)
1438      1006 CONTINUE
1439      MD(35) = GDM(04)/D(2)
1440      MD(27) = DMAT(44)/D(2)
1441      MD(30) = GDM(04)
1442      MD(38) = GDM(105)
1443      MD(40) = GDM(106)
1444      MD(41) = GDM(05)/D(2)
1445      MD(42) = DMAT(45)/D(2)
1446      MD(43) = GDM(05)
1447      MD(44) = GDM(107)
1448      MD(45) = GDM(108)
1449      C
1450      C*****
1451      C
1452      C      ***ADDITIONAL MINE DATA***
1453      C
1454      MD(100) = GDM(10)
1455      MD(100) = GDM(11)
1456      MD(101) = GDM(12)
1457      MD(102) = GDM(13)
1458      C
1459      C      ***FUEL SENSITIVITY--LB/IN***
1460      MD(102) = GDM(30)
1461      C      ***MAX POSITIVE LOAD FACTOR***
1462      MD(106) = GDD(11)
1463      C
1464      IF (MD(106) - GDD(12)) 1021,1002,1022
1465      1021 MD(106) = GDD(12)
1466      1002 IF (MD(106) - GDD(14)) 1023,1024,1024
1467      1023 MD(106) = GDD(14)
1468      1024 CONTINUE
1469      C
1470      C*****

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CARD NO	****	CONTENTS	****
1491	C		
1492		IF (DWT(7)) 1030,1030,1040	
1493		1030 IF (DWT(8)) 1040,1040,1032	
1494		1032 MD(46) = DWT(874)/D(2)	
1495		MD(47) = DATS(14)	
1496		MD(48) = DWT(875)	
1497		MD(49) = DATS(15) - GDM(11)	
1498		MD(50) = D(1)	
1499		MD(51) = DWT(877)/D(2)	
1500	C	NO DATA FOR 10X AT PRESENT	
1501		MD(53) = DWT(878)/D(2)	
1502		IF (DWT(879)) 1040,1040,1035	
1503		1035 MD(54) = DWT(879)/D(2)	
1504		MD(55) = DATS(17)	
1505		MD(56) = DWT(880)	
1506		MD(57) = DATS(18) - GDM(11)	
1507		MD(58) = D(1)	
1508		MD(59) = DWT(882)/D(2)	
1509	C	NO DATA FOR 10X AT PRESENT	
1510		MD(61) = DWT(883)/D(2)	
1511		1040 IF (DWT(182)) 1050,1050,1045	
1512		1045 MD(62) = DWT(182)/D(2)	
1513		MD(63) = GDM(29)	
1514		MD(64) = DWT(202)	
1515	C		
1516	C	TEST ON PAYLOAD	
1517		1050 IF (GDM(82)) 1070,1070,1052	
1518		1052 IF (GDM(104)) 1054,1054,1060	
1519	C	INBOARD PAYLOAD ONLY	
1520		1054 MD(70) = GDM(82)/D(2)	
1521		MD(71) = GDM(103)	
1522		MD(72) = GDM(82)	
1523		IF (GDM(137)) 1070,1070,1056	
1524		1056 MD(86) = GDM(137)/D(2)	
1525		MD(87) = GDM(103)	
1526		MD(88) = GDM(77)	
1527		GO TO 1070	
1528	C	INBOARD AND OUTBOARD PAYLOAD	
1529		1060 MD(70) = GDM(82)/D(4)	
1530		MD(71) = GDM(103)	
1531		S(201) = (GDM(104) - GDM(103)) * TAN(DWT(46) * D(16) / D(2))	
1532		MD(72) = GDM(82) - S(201)	
1533		MD(78) = GDM(82)/D(4)	
1534		MD(79) = GDM(104)	
1535		MD(80) = GDM(82) + S(201)	
1536		IF (GDM(137)) 1070,1070,1062	
1537		1062 MD(86) = GDM(137)/D(4)	
1538		MD(87) = GDM(103)	
1539		MD(88) = GDM(77) - S(201)	
1540		MD(84) = GDM(137)/D(4)	
1541		MD(95) = GDM(104)	
1542		MD(96) = GDM(77) + S(201)	
1543	C		
1544	C	HORIZONTAL TAIL DATA	
1545		1070 MD(111) = DWT(22)	
1546		MD(112) = D(24)	
1547		MD(113) = DWT(221)/D(2)/MD(3)	
1548		MD(114) = DWT(4)	
1549		MD(115) = DWT(8)	
1550		MD(116) = DWT(7)	
1551		MD(117) = DWT(2)	
1552		MD(118) = DWT(6)	
1553		MD(119) = DWT(10) * 2.0	
1554		MD(120) = DWT(222)/D(2)	
1555		MD(122) = D(2)	
1556		DO 1075 1=1,11	
1557		MD(1+122) = DWT(1+10)	
1558		1075 CONTINUE	
1559	C		
1560	C	*****	
1561	C		

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01/00/74      INPUT LISTING      AUTOFLW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1002      C      ***ADDITIONAL HORI DATA***
1003      MD(103) = GDV(10)
1004      MD(104) = GDV(11)
1005      MD(105) = GDV(12)
1006      MD(106) = GDV(13)
1007      C
1008      C*****
1009      C
1010      C      VERTICAL TAIL DATA
1011      MD(134) = GDV(16)
1012      MD(135) = GDV(15)
1013      MD(136) = DW(124)/DW(23)/MD(13)
1014      MD(137) = DW(13) + DW(18)*TAN(DW(11)*D(16))
1015      MD(138) = GDV(11)*D(2)
1016      MD(139) = GDV(2)*D(2)
1017      MD(140) = GDV(4)
1018      MD(141) = GDV(3)
1019      MD(142) = D(24)
1020      MD(143) = DW(1242)/DW(23)
1021      MD(145) = D(2)
1022      DO 1005 I=1,11
1023      MD(1+145) = DW(1+8) - DW(9)
1024      1005 CONTINUE
1025      C
1026      C*****
1027      C
1028      C      ***ADDITIONAL VERT DATA***
1029      C      ***NO OF VERT PALS***
1030      MD(150) = 1.0
1031      IF (GDV(7)) 1077,1077,1078
1032      1078 MD(150) = 2.0
1033      C      ***TYPE OF TAILS--0=CONV., 1=T-TAIL***
1034      1077 MD(157) = 0.0
1035      IF (MISC(53)) 1079,1079,1078
1036      1078 MD(157) = 1.0
1037      1078 MD(167) = GDV(10)
1038      MD(168) = GDV(11)
1039      MD(169) = GDV(12)
1040      MD(170) = GDV(13)
1041      C
1042      C*****
1043      C
1044      IF (P(47)) 5001,5001,5002
1045      5001 CONTINUE
1046      WRITE(6,5001) (1,MD(1),MD(1+1),MD(1+2),MD(1+3),MD(1+4),I=1,200,5)
1047      5001 FORMAT(10H1 MD(1) FROM DCNTL,70H,21H** DCNTL - (P(47)) **/
1048      1 (110, 5F10.4))
1049      5002 CONTINUE
1050      C
1051      C
1052      C      *****
1053      C
1054      CALL WRITE(1,MD(1),200,2)
1055      C
1056      C      *****
1057      C
1058      RETURN
1059      END
1060      C
1061      C      SUBROUTINE OFATHO
1062      C      SUBROUTINE OFATHO
1063      C
1064      SUBROUTINE OFATHO
1065      C
1066      C      THIS ROUTINE SETS UP INERTIAL LOADS DATA IN BC ARRAY FOR
1067      C      USE IN AIRLOADS MODULE FATIGUE EVALUATION ROUTINE FATHO
1068      C
1069      COMMON TCOM(4200)
1070      COMMON /MISC/ MISC(100)
1071      C
1072      DIMENSION D(700),GD(700),DV(232),S(400),MD(200)

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1033      *, DWMT(1000)
1034      *, GO(120), DATS(40), DWMT(50), BC(200), WMT(112), WMT(112)
1035      *, WMT(112), XB1(112), XB2(112), YB1(112), YB2(112), XB1(112)
1036      *, XB2(112), YB1(112), YB2(112), XB1(112), XB2(112), YB1(112)
1037      *, YB2(112), GO(30)
1038      C
1039      DIMENSION DWMT(112),XB1(112),XB2(112),YB1(112),YB2(112)
1040      C
1041      EQUIVALENCE (TCOM(1),D(1)), (TCOM(70),OO(1)), (TCOM(140),DV(1))
1042      *, (TCOM(372),S(1)), (TCOM(1412),NO(1))
1043      *, (DV(32),DWMT(1)), (DV(112),DWMT(1)), (DV(212),BC(1))
1044      *, (OO(1),GO(1)), (OO(2),OO(1)), (GO(40),DATS(1))
1045      *, (YEA1,DWMT(394)), (XEA1,DWMT(395))
1046      *, (YEA2,DWMT(396)), (XEA2,DWMT(397))
1047      *, (YWF ,DWMT(1))
1048      EQUIVALENCE      (WMT(1),DWMT(497)), (WMT(2),DWMT(521))
1049      *, (WMT(3),DWMT(545)), (XB1(1),DWMT(569)), (XB2(1),DWMT(581))
1050      *, (YB1(1),DWMT(603)), (YB2(1),DWMT(605)), (XB1(2),DWMT(617))
1051      *, (XB2(2),DWMT(629)), (YB1(2),DWMT(641)), (YB2(2),DWMT(653))
1052      *, (XB1(3),DWMT(665)), (XB2(3),DWMT(677)), (YB1(3),DWMT(689))
1053      *, (YB2(3),DWMT(701))
1054      C
1055      EQUIVALENCE (DWMT(1),DWMT(872))
1056      *, (XB1(1),DWMT(896)), (XB2(1),DWMT(908))
1057      *, (YB1(1),DWMT(920)), (YB2(1),DWMT(932))
1058      C
1059      C
1060      C IF HAVE WING MOUNTED MACELLS SET-UP SO THEY CAN BE ADDED IN TO MOM.
1061      DO 70 N=1,25
1062      SIN(100) = D(24)
1063      70 CONTINUE
1064      IF(OO(17).NE.D(24)) GO TO 80
1065      C SO KNOW HAVE INBOARD PAIR AT LEAST - SUM WTS AND MOMENTS OF MACELLE
1066      C      AND CONTENTS
1067      S(110) = DWMT(974)
1068      S(117) = DWMT(975)
1069      S(118) = DATS(14)
1070      C TEST IF HAVE MORE THAN 2, IF SO DO OUTBOARD PAIR
1071      IF(DATS(1) - D(2)) 80,80,70
1072      70 S(119) = DWMT(979)
1073      S(120) = DWMT(980)
1074      S(121) = DATS(17)
1075      80 CONTINUE
1076      C
1077      C
1078      C ALWAYS HAVE 3 WEIGHTS AND 2 CUTS,      FIXED WING AND AFT SHEEP IN SAME
1079      C      LOCATIONS      IF SHEPT, ALSO DO FWD      SHEEP.
1080      C
1081      C SIDE OF FUSELAGE (FIXED OR AFT)
1082      DO 135 N = 2,12
1083      S(1) = YB1(N)-YWF
1084      IF(S(1)) 115,115,110
1085      110 S(104) = S(104) + WMT(N)*S(1)
1086      115 S(1) = YB12(N)-YWF
1087      IF(S(1)) 125,125,120
1088      120 S(105) = S(105) + WMT2(N)*S(1)
1089      125 S(1) = YB13(N)-YWF
1090      IF(S(1)) 132,132,130
1091      130 S(106) = S(106) + WMT3(N)*S(1)
1092      132 S(1) = YB1(N) - YWF
1093      IF(S(1)) 135,135,134
1094      134 S(122) = S(122) + DWMT(N)*S(1)
1095      C
1096      135 CONTINUE
1097      C HAVE TO CHECK FOR INBOARD AND/OR OUTBOARD MACELLES
1098      IF(OO(17).NE.D(24)) GO TO 150
1099      S(2) = D(24)
1100      S(1) = S(110)-YWF
1101      IF(S(1)) 141,141,140
1102      140 S(12) = S(110)*S(1)
1103      141 S(1) = S(121)-YWF

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01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
1704	IF(S(1)) 140,140,140		
1705	140 S(2) = S(2) + S(110)*S(1)		
1706	140 S(104) = S(104) + S(2)		
1707	S(106) = S(106) + S(2)		
1708	S(167) = S(106) + S(2)		
1709	S(180) = S(180) + S(2)		
1710	C		
1711	C WIND OUTBOARD STATION (FIXED OR AFT POSITION)		
1712	C SINE, COSINE AND TANGENT OF SHEEP OF THE ELASTIC AXIS IN AFT POSIT		
1713	100 S(1) = SIN(2) *D(10)		
1714	S(2) = SIN(S(1))		
1715	S(3) = COS(S(1))		
1716	S(4) = S(2)/S(7)		
1717	00 175 N = 2,12		
1718	S(1) = YD(10) - YEA		
1719	IF(S(1)) 105,105,103		
1720	103 S(107) = S(107) + MAT(10)*((X(10)(10)-XEA)- S(1)*S(4))*S(2) +		
1721	0 S(1)/S(3))		
1722	105 S(1) = YD(10) - YEA		
1723	IF(S(1)) 105,105,100		
1724	100 S(100) = S(100) + MAT(10)*((X(10)(10)-XEA)-S(1)*S(4))*S(2) +		
1725	0 S(1)/S(3))		
1726	105 S(1) = YD(10) - YEA		
1727	IF(S(1)) 172,172,170		
1728	170 S(109) = S(109) + MAT(10)*((X(10)(10)-XEA)-S(1)*S(4))*S(2) +		
1729	0 S(1)/S(3))		
1730	170 S(1) = YD(10) - YEA		
1731	IF(S(1)) 175,175,174		
1732	174 S(123) = S(123) + D(10)*((X(10)(10)-XEA)-S(1)*S(4))*S(2) +		
1733	0 S(1)/S(3))		
1734	175 CONTINUE		
1735	C		
1736	IF(DD(17).NE.D(24)) GO TO 200		
1737	S(5) = D(24)		
1738	S(1) = S(110)-YEA		
1739	IF(S(1))105,105,100		
1740	100 S(5) = ((S(117)-XEA)-S(1)*S(4))*S(2) + S(1)/S(3))*S(110)		
1741	105 S(1) = S(121)-YEA		
1742	IF(S(1)) 105,105,100		
1743	100 S(5) = S(5) + ((S(120)-XEA)-S(1)*S(4))*S(2) + S(1)/S(3))*S(110)		
1744	105 S(107) = S(107)+S(5)		
1745	S(100) = S(100)+S(5)		
1746	S(109) = S(109)+S(5)		
1747	S(123) = S(123)+S(5)		
1748	C		
1749	C TEST IF CALCULATE FOR FORWARD SHEEP POSITION		
1750	200 IF(DD(12)) 200,200,202		
1751	C FWD. SHEEP SIDE OF FURCLAE.		
1752	202 00 275 N=2,12		
1753	S(1) = YD(10) - YF		
1754	IF(S(1)) 215,215,210		
1755	210 S(110) = S(110) + MAT(10)*S(1)		
1756	215 S(1) = YD(10) - YF		
1757	IF(S(1)) 225,225,220		
1758	220 S(111) = S(111) + MAT(10)*S(1)		
1759	225 S(1) = YD(10) - YF		
1760	IF(S(1)) 232,232,230		
1761	230 S(112) = S(112) + MAT(10)*S(1)		
1762	232 S(1) = YD(10) - YF		
1763	IF(S(1)) 235,235,234		
1764	234 S(124) = S(124) + D(10)*S(1)		
1765	235 CONTINUE		
1766	C		
1767	IF(DD(17).NE.D(24)) GO TO 240		
1768	C AT PRESENT FACELLE LOCATION IS CONSIDERED TO BE FIXED EVEN IF SHEEP		
1769	S(110) = S(110) + S(2)		
1770	S(111) = S(111) + S(2)		
1771	S(112) = S(112) + S(2)		
1772	S(124) = S(124) + S(2)		
1773	C		
1774	C WIND OUTBOARD STATION (FORWARD SHEEP)		

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01/00/74      INPUT LISTING      AUTOFLON CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1775      C SINE, COSINE AND TANGENT OF SHEEP OF ELASTIC AXIS
1776      240 S(1) = DM(23)*D(10)
1777      S(2) = SIN(S(1))
1778      S(3) = COS(S(1))
1779      S(4) = S(2)/S(3)
1780      DO 275 N=2,12
1781      S(1) = YB2(1N)-YEA2
1782      IF(S(1)) 255,255,250
1783      250 S(113) = S(113) + MT2(1N)* (XB2(1N)-XEA2-S(1)*S(4)*S(2) +
1784      * S(1)/S(3) )
1785      255 S(1) = YB2(1N)-YEA2
1786      IF(S(1)) 265,265,260
1787      260 S(114) = S(114) + MT2(1N)* (XB2(1N)-XEA2-S(1)*S(4)*S(2) +
1788      * S(1)/S(3) )
1789      265 S(1) = YB2(1N)-YEA2
1790      IF(S(1)) 272,272,270
1791      270 S(115) = S(115) + MT3(1N)* (XB2(1N)-XEA2-S(1)*S(4)*S(2) +
1792      * S(1)/S(3) )
1793      272 S(1) = YB2(1N)-YEA2
1794      IF(S(1)) 275,275,274
1795      274 S(125) = S(125) + DM(1N)* (XB2(1N)-XEA2-S(1)*S(4)*S(2) +
1796      * S(1)/S(3) )
1797      275 CONTINUE
1798      C
1799      IF(00117).NE.D(124)) GO TO 300
1800      S(5) = D(24)
1801      S(1) = S(10)-YEA2
1802      IF(S(1))205,205,200
1803      200 S(5) = (S(117)-XEA2-S(1)*S(4)*S(2) + S(1)/S(3) ) *S(110)
1804      205 S(1) = S(121)-YEA2
1805      IF(S(1)) 295,295,290
1806      290 S(5) = S(5) + (S(120)-XEA2-S(1)*S(4)*S(2) + S(1)/S(3) ) *S(110)
1807      295 S(113) = S(113) + S(5)
1808      S(114) = S(114) + S(5)
1809      S(115) = S(115) + S(5)
1810      S(125) = S(125)+S(5)
1811      C .....
1812      C CHANGE SIGNS OF MOMENTS... DOWN BENDING IS SUPPOSED TO BE NEGATIVE.
1813      C AND ARE TO BE FOR ONE SIDE INSTEAD OF BOTH AS ARE NOW.
1814      C
1815      300 DO 3001 N=1,12
1816      SIN(103) = -SIN(103)/D(12)
1817      3001 CONTINUE
1818      DO 3002 N=1,4
1819      SIN(121) = - S(121)/D(12)
1820      3002 CONTINUE
1821      C
1822      C .....
1823      C
1824      C MOMENTS THAT ARE CALCULATED FOR BASIC FLIGHT DESIGN MT SAVED IN ---
1825      C ----- FOR USE IN CALC. MAX STATIC BENDING MOM. FACTORS -----
1826      MHISC(43) = S(105)
1827      MHISC(44) = S(108)
1828      IF(00112) 340,340,342
1829      340 DO 341 N=1,8
1830      MHISC(N+41) = SIN(103)
1831      341 CONTINUE
1832      GO TO 344
1833      342 DO 343 N=1,8
1834      MHISC(N+41) = SIN(100)
1835      343 CONTINUE
1836      344 CONTINUE
1837      C BC(100) SERVICE LIFE
1838      BC(100) = 00017)
1839      MHISC(34) = 00017)
1840      C BC(170) NO. OF LANDINGS IN LIFE
1841      BC(170) = 00010)
1842      BC(171) = YEA1
1843      C BC(107) FATIGUE TAKE-OFF MT.
1844      C TEST FOR FATIGUE TAKE-OFF HEIGHT DIFFERENT FROM NOW
1845      IF(00010) 350,350,354

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01/05/74      INPUT LISTING      AUTOFLEX CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

1000      EQUIVALENCE (MLD(1),S(10))
1001      C
1002      EQUIVALENCE (VBS(1),MLD(14), (BPS(1),MLD(15)), (T20(1),MLD(20))
1003      , (VM(1),MLD(37)), (BPM(1),MLD(40)), (TM(1),MLD(90))
1004      , (VMS(1),MLD(70)), (BPM(1),MLD(81)), (TMS(1),MLD(82))
1005      , (VBT(1),MLD(103)), (BPM(1),MLD(114)), (TBT(1),MLD(125))
1006      , (VLT(1),MLD(130)), (BPM(1),MLD(147)), (TLT(1),MLD(150))
1007      , (VBS(1),MLD(160)), (BPM(1),MLD(160)), (TBS(1),MLD(161))
1008      , (VBT(1),MLD(202)), (BPM(1),MLD(213)), (TBT(1),MLD(224))
1009      , (VM(1),MLD(275)), (BPM(1),MLD(246)), (TM(1),MLD(257))
1010      , (VM(1),MLD(260)), (BPM(1),MLD(270)), (TV(1),MLD(280))
1011      C
1012      EQUIVALENCE (CBH(1),MLD(11), (LM(1),MLD(13))
1013      , (CBV(1),MLD(25)), (LMV(1),MLD(37))
1014      C
1015      DATA MV/INT /, ME/MEZ/
1016      C
1017      C      SETUP HORIZONTAL TAIL DATA
1018      S(7) = DMH(1)*D(8)
1019      YEAM(1) = D(24)
1020      YEAM(1) = DMH(4) + DMH(5)*DMH(22)
1021      C
1022      DO 400 I=1,11
1023      YEAM(I+1) = DMH(I+10)
1024      YEAM(I+1) = YEAM(I) + YEAM(I+1)*TAN(DMH(3)*D(16))
1025      YBH(1) = (YEAM(I+1) + YEAM(I))/D(2)
1026      CBH(1) = DMH(5) - DMH(5)*D(1) - DMH(6)*YBH(1)/S(7)
1027      LMH(1) = DMH(4) + YBH(1)*TAN(DMH(2)*D(16))
1028      400 CONTINUE
1029      C
1030      YEAM(13) = S(7)
1031      YEAM(13) = YEAM(13) + YEAM(13)*TAN(DMH(3)*D(16))
1032      YBH(12) = (YEAM(13) + YEAM(12))/D(2)
1033      CBH(12) = DMH(5) - DMH(5)*D(1) - DMH(6)*YBH(12)/S(7)
1034      LMH(12) = DMH(4) + YBH(12)*TAN(DMH(2)*D(16))
1035      C
1036      C      DISTRIBUTE HORIZONTAL TAIL AND CONTENTS BASED ON PARABOLIC DIST.
1037      S(1) = DMH(22) + DMH(222)
1038      S(2) = DMH(22)*DMH(23) + DMH(222)*DMH(232)
1039      S(5) = S(1)/(S(7)*D(20))
1040      S(8) = S(1)
1041      S(3) = D(24)
1042      S(4) = D(24)
1043      C
1044      DO 420 I=1,12
1045      S(8) = S(8)
1046      IF(S(7) - YEAM(I+1)) 412,412,414
1047      412 S(8) = D(24)
1048      GO TO 416
1049      414 S(8) = S(8)*(S(7) - YEAM(I+1))*D(20)
1050      416 MHT(1) = S(8) - S(8)
1051      S(3) = S(3) + MHT(1)*LMH(1)
1052      S(4) = S(4) + MHT(1)*CBH(1)
1053      420 CONTINUE
1054      C
1055      S(8) = (S(2) - S(3))/S(4)
1056      C
1057      DO 430 I=1,12
1058      LMH(1) = LMH(1) + S(8)*CBH(1)
1059      430 CONTINUE
1060      C
1061      C      SETUP VERTICAL TAIL DATA
1062      S(7) = DMH(1)*D(12) - DMH(5)
1063      YEAM(1) = D(24)
1064      YEAM(1) = DMH(3) + DMH(4)*DMH(21) + DMH(5)*TAN(DMH(2)*D(16))
1065      C
1066      DO 450 I=1,11
1067      YEAM(I+1) = DMH(I+10) - DMH(5)
1068      YEAM(I+1) = YEAM(I) + YEAM(I+1)*TAN(DMH(2)*D(16))
1069      ZBH(1) = (YEAM(I+1) + YEAM(I))/D(2)
1070      CBV(1) = DMH(4) - DMH(4)*D(1) - DMH(5)*(ZBH(1) + DMH(5))

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01/05/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
2000	I (S(7) + DNV(8))		
2000	HLV(1) = DNV(3) + (ZDV(1) + DNV(8))*TAN(DNV(1)*D(16))		
2001	400 CONTINUE		
2002	C		
2003	ZEAM(3) = S(7)		
2004	ZEAM(3) = ZEAM(3) + ZEAM(3)*TAN(DNV(2)*D(16))		
2005	ZDV(2) = (ZEAM(3) + ZEAM(3))/D(2)		
2006	CDV(2) = DNV(4) - DNV(4)*D(1) - DNV(5)*(ZDV(2) + DNV(5))		
2007	I (S(7) + DNV(8))		
2008	HLV(2) = DNV(3) + (ZDV(2) + DNV(8))*TAN(DNV(1)*D(16))		
2009	C		
2070	C DISTRIBUTE VERTICAL TAIL AND CONTENTS BASED ON PARABOLIC DIST		
2071	S(1) = DWT(241) + DWT(242)		
2072	S(2) = DWT(241)*DWT(251) + DWT(242)*DWT(252)		
2073	C		
2074	C TEST FOR TWO VERTICALS		
2075	IF(D(1) - DNV(23)) 452,454,454		
2076	452 S(1) = S(1)/D(2)		
2077	S(2) = S(2)/D(2)		
2078	454 S(5) = S(1)/(C(7)*D(20))		
2079	S(8) = S(1)		
2080	S(3) = D(24)		
2081	S(4) = D(24)		
2082	C		
2083	DO 470 I=1,12		
2084	S(8) = S(8)		
2085	IF(S(7) - ZEAM(1+1)) 462,462,464		
2086	462 S(8) = D(24)		
2087	GO TO 466		
2088	464 S(8) = S(5)*S(7) - ZEAM(1+1)*D(20)		
2089	466 W(1) = S(8) - S(8)		
2090	S(3) = S(3) + W(1)*HLV(1)		
2091	S(4) = S(4) + W(1)*CDV(1)		
2092	470 CONTINUE		
2093	C		
2094	S(8) = (S(2) - S(3))/S(4)		
2095	C		
2096	DO 480 I=1,12		
2097	HDV(1) = HLV(1) + S(8)*CDV(1)		
2098	480 CONTINUE		
2099	C		
2100	C CLEAR LOADS DATA REGION		
2101	C		
2102	DO 500 I=1,300		
2103	MLD(1) = D(24)		
2104	500 CONTINUE		
2105	C		
2106	C CALCULATE DEAD HEIGHT LOADS - HORIZONTAL TAIL TO NET		
2107	S(1) = DNV(3)*D(16)		
2108	S(2) = SIN(S(1))		
2109	S(3) = COS(S(1))		
2110	S(4) = S(2)/S(3)		
2111	C		
2112	DO 520 I=1,11		
2113	K = I + 1		
2114	DO 510 J=K,12		
2115	S(5) = VDN(J) - ZEAM(1+1)		
2116	S(6) = HDV(J) - ZEAM(1+1)		
2117	WN(J) = WN(J) - W(1)/D(2)		
2118	BDH(1) = BDH(1) - W(1)*((S(6) - S(5)*S(4))*S(2) + S(5)/S(3))/		
2119	I S(2)		
2120	TH(1) = TH(1) + W(1)*((S(6) - S(5)*S(4))*S(3)/D(2)		
2121	510 CONTINUE		
2122	520 CONTINUE		
2123	C		
2124	C CALCULATE DEAD HEIGHT LOADS - VERTICAL TAIL TO NET		
2125	S(1) = DNV(2)*D(16)		
2126	S(2) = SIN(S(1))		
2127	S(3) = COS(S(1))		
2128	S(4) = S(2)/S(3)		
2129	C		

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CAREO NO      ****      CONTENTS      ****

2130          DO 970 I=1,11
2131          K = I + 1
2132          DO 980 J=K,12
2133          S(5) = ZDV(I,J) - ZEAN(I+1)
2134          S(6) = XDVI(J) - XEAN(I+1)
2135          VV(1) = VV(1) - VV(I,J)
2136          BW(1) = BW(1) - VV(I,J)*(S(6) - S(5)*S(4))*S(2) + S(5)*S(3)
2137          TV(1) = TV(1) + VV(I,J)*S(6) - S(5)*S(4)*S(3)
2138          980 CONTINUE
2139          970 CONTINUE
2140          C
2141          MLD(1) = DMV(944)
2142          MLD(2) = GDD(11)
2143          MLD(3) = GDD(13)
2144          C
2145          C      CALCULATE LOADS DUE TO WIND HEIGHT
2146          S(1) = DM(23)*D(16)
2147          S(2) = SIN(S(1))
2148          S(3) = COS(S(1))
2149          S(4) = S(2)/S(3)
2150          IF(GD(12)) 605,609,610
2151          605 S(11) = S(1)
2152          S(12) = S(2)
2153          S(13) = S(3)
2154          S(14) = S(4)
2155          DO 620
2156          610 S(11) = DM(23)*D(16)
2157          S(12) = SIN(S(11))
2158          S(13) = COS(S(11))
2159          S(14) = S(12)/S(13)
2160          C
2161          C
2162          620 DO 650 I=1,11
2163          S(8) = DM(4) + DM(5)*DM(21) + DM(1+8)*S(4)
2164          S(7) = DM(1+8)
2165          IF(GD(12)) 625,629,630
2166          C
2167          625 S(17) = S(7)
2168          S(18) = S(8)
2169          DO 632
2170          630 S(17) = DM(1+29)
2171          S(18) = DM(24) + DM(25)*DM(44) + DM(1+29)*S(14)
2172          632 K = 1
2173          634 IF(VB(16)) - S(7)) 636,640,640
2174          636 K = K + 1
2175          IF(K - 12) 634,634,700
2176          C
2177          640 DO 645 J=K,12
2178          S(9) = VB(16) - S(7)
2179          S(10) = XB(16) - S(8)
2180          S(15) = VB(20) - S(17)
2181          S(16) = XB(20) - S(18)
2182          VV(11) = VV(11) - VV(I,J)/D(2)
2183          BW(11) = BW(11) - VV(I,J)*(S(6) - S(5)*S(4))*S(2) +
2184          | S(5)*S(3)/D(2)
2185          TV(11) = TV(11) + VV(I,J)*S(6) - S(5)*S(4)*S(3)/D(2)
2186          VV(12) = VV(12) - VV(I,J)/D(2)
2187          BW(12) = BW(12) - VV(I,J)*(S(6) - S(5)*S(4))*S(2) +
2188          | S(5)*S(3)/D(2)
2189          TV(12) = TV(12) + VV(I,J)*S(6) - S(5)*S(4)*S(3)/D(2)
2190          645 CONTINUE
2191          C
2192          650 CONTINUE
2193          C
2194          C
2195          C      CALCULATE LOADS DUE TO WIND AND CONTENT INERTIA
2196          700 DO 700 I=1,11
2197          S(7) = DM(1+8)
2198          S(8) = DM(4) + DM(5)*DM(21) + DM(1+8)*S(4)
2199          IF(GD(12)) 700,705,710
2200          705 S(17) = S(7)

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CARD NO	CONTENTS		
0001	S(10) = S(0)		
0002	GO TO 712		
0003	710 S(17) = DWT(1+20)		
0004	S(10) = DWT(2) + DWT(25) + DWT(41) + DWT(1+20) * S(14)		
0005	712 K = 1		
0006	714 IF (V012(K) - S(7)) 710, 710, 710		
0007	716 K = K + 1		
0008	IF (K - 12) 714, 714, 750		
0009	C		
0010	710 GO 750 J=K, 12		
0011	S(0) = V012(J) - S(7)		
0012	S(0) = V012(J) - S(0)		
0013	V12(1) = V12(1) - V012(J)/D(2)		
0014	DW12(1) = DW12(1) - V012(J) * S(0) - S(0) * S(4) * S(2) +		
0015	I S(0) * S(13) / D(2)		
0016	T12(1) = T12(1) - V012(J) * S(0) - S(0) * S(4) * S(13) / D(2)		
0017	S(15) = V021(J) - S(17)		
0018	S(10) = V021(J) - S(10)		
0019	V02(1) = V02(1) - V021(J) / D(2)		
0020	DW02(1) = DW02(1) - V021(J) * S(10) - S(10) * S(14) * S(12) +		
0021	I S(10) * S(13) / D(2)		
0022	T2(1) = T2(1) - V021(J) * S(10) - S(10) * S(14) * S(13) / D(2)		
0023	S(15) = V022(J) - S(17)		
0024	S(10) = V022(J) - S(10)		
0025	V022(1) = V022(1) - V022(J) / D(2)		
0026	DW022(1) = DW022(1) - V022(J) * S(10) - S(10) * S(14) * S(12) +		
0027	I S(10) * S(13) / D(2)		
0028	T22(1) = T22(1) - V022(J) * S(10) - S(10) * S(14) * S(13) / D(2)		
0029	S(15) = V023(J) - S(17)		
0030	S(10) = V023(J) - S(10)		
0031	V023(1) = V023(1) - V023(J) / D(2)		
0032	DW023(1) = DW023(1) - V023(J) * S(10) - S(10) * S(14) * S(12) +		
0033	I S(10) * S(13) / D(2)		
0034	T23(1) = T23(1) - V023(J) * S(10) - S(10) * S(14) * S(13) / D(2)		
0035	750 CONTINUE		
0036	C		
0037	C TEST ON MACELLE		
0038	750 IF (00117) .NE. 0124) GO TO 000		
0039	11 = 1		
0040	S(0) = DATS(14) - S(7)		
0041	IF (S(0)) 770, 770, 752		
0042	752 S(0) = DWT(075) - S(0)		
0043	S(15) = DATS(14) - S(17)		
0044	S(10) = DWT(075) - S(10)		
0045	S(0) = DWT(074) * S(0) - S(0) * S(4) * S(2) + S(0) * S(13) / D(2)		
0046	S(10) = DWT(074) * S(0) - S(0) * S(4) * S(13) / D(2)		
0047	S(10) = DWT(074) * S(10) - S(10) * S(14) * S(12) + S(10) * S(13) / D(2)		
0048	S(20) = DWT(074) * S(10) - S(10) * S(14) * S(13) / D(2)		
0049	S(21) = DWT(074) / D(2)		
0050	760 V12(1) = V12(1) - S(21)		
0051	DW12(1) = DW12(1) - S(0)		
0052	T12(1) = T12(1) - S(10)		
0053	V02(1) = V02(1) - S(21)		
0054	DW02(1) = DW02(1) - S(10)		
0055	T2(1) = T2(1) - S(20)		
0056	V022(1) = V022(1) - S(21)		
0057	DW022(1) = DW022(1) - S(10)		
0058	T22(1) = T22(1) - S(20)		
0059	V023(1) = V023(1) - S(21)		
0060	DW023(1) = DW023(1) - S(10)		
0061	T23(1) = T23(1) - S(20)		
0062	IF (11 - 1) 770, 770, 000		
0063	770 11 = 2		
0064	S(0) = DATS(17) - S(7)		
0065	IF (S(0)) 000, 000, 770		
0066	770 S(0) = DWT(000) - S(0)		
0067	S(15) = DATS(17) - S(17)		
0068	S(10) = DWT(000) - S(10)		
0069	S(0) = DWT(070) * S(0) - S(0) * S(4) * S(2) + S(0) * S(13) / D(2)		
0070	S(10) = DWT(070) * S(0) - S(0) * S(4) * S(13) / D(2)		
0071	S(10) = DWT(070) * S(10) - S(10) * S(14) * S(12) + S(10) * S(13) / D(2)		

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CONTENTS

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2272      S(20) = DWMT(978)*(S(18) - S(15)*S(14)*S(13)/D(2)
2273      S(21) = DWMT(978)/D(2)
2274      GO TO 760
2275      900 CONTINUE
2276      C
2277      C      GO TAKE LOADS - 20
2278      C
2279      DO B18 I=1,11
2280      VEG(I) = VE(I)*D(2)
2281      BWEG(I) = BW(I)*D(2)
2282      T20(I) = T2(I)*D(2)
2283      B18 CONTINUE
2284      C
2285      IF(GD(13)) 900,900,920
2286      C
2287      C      LANDING GEAR ON MING
2288      B20 S(21) = DWMT(944)*(DWMT(946) - GD(27)/(GD(26) - GD(27))
2289      C
2290      DO B30 I=1,11
2291      IF(GD(12)) B12,B12,B14
2292      B12 S(17) = DWMT(9)
2293      S(18) = DWMT(4) + DWMT(5)*DWMT(21) + DWMT(1+9)*S(14)
2294      GO TO B16
2295      B14 S(17) = DWMT(1+29)
2296      S(18) = DWMT(24) + DWMT(25)*DWMT(41) + DWMT(1+29)*S(14)
2297      B18 S(15) = GD(20) - S(17)
2298      IF(S(15)) 900,900,B18
2299      B18 S(16) = GD(26) - S(17)
2300      S(19) = S(21)*(S(18) - S(15)*S(14)*S(12) + S(15)/S(13))
2301      S(20) = S(21)*(S(18) - S(15)*S(14)*S(13))
2302      VEG(I) = VEG(I) + S(21)
2303      BWEG(I) = BWEG(I) + S(19)
2304      T20(I) = T20(I) + S(20)
2305      B30 CONTINUE
2306      C
2307      900 CONTINUE
2308      C
2309      IF(IP(47)) 9501,9501,9502
2310      9501 CONTINUE
2311      C      FOR MING FORWARD STATIONS TEST BC(70) IF 0 USE AFT STATIONS
2312      IF(GD(12)) B10,B10,B15
2313      B10 DO B11 I=1,11
2314      B11 S(I) = DWMT(1+9)
2315      GO TO B20
2316      B15 DO B16 I=1,11
2317      B16 S(I) = DWMT(1+29)
2318      C
2319      B20 WRITE(6,B21)
2320      B21 FORMAT(1H1,40X,2PHSHEAR, MOMENT AND TORQUE,24X,
2321      1 21H** DWMTD - IP(47) **, // 18X,15HWD ONLY AT
2322      *10, 33X, 23HWD AND CONTENTS AT 10// 20X, 18HWT POSITION, 33X,
2323      * 27HWT POSITION GROSS HEIGHT 2 1
2324      WRITE(6,B23)
2325      B23 FORMAT(4H0 1, 5X,3HSEAR,6X,6HMOMENT,6X,6HTORQUE,6X,10HOUTT PLANE
2326      *11X,3HSEAR,6X,6HMOMENT,6X,6HTORQUE, 6X,1H1 //)
2327      WRITE(6,B25) (1,WM(I),BW(I),TM(I),DWMT(1+9),V12(I),BW12(I),
2328      *T12(I), 1, I=1,11)
2329      B25 FORMAT(114,3F12.0,6X,1F6.1,6X,3F12.0,6X,113)
2330      C
2331      WRITE(6,B31)
2332      B31 FORMAT(1H0, 18X,15HWD ONLY AT 10,33X,23HWD AND CONTENTS AT 10
2333      *//18X,18HFORWARD POSITION, 20X, 33HFORWARD POSITION AT GROSS HEIGHT
2334      *T 1 1
2335      WRITE(6,B25)
2336      WRITE(6,B25) (1,WM(I),BW(I),TM(I),S(I),VE(I),BW12(I),
2337      * T2(I), 1, I=1,11)
2338      C
2339      WRITE(6,B38)
2340      B38 FORMAT(1H1,6X,21H** DWMTD - IP(47) **//
2341      1 18X, 23HWD AND CONTENTS AT 10, 20X, 23HWD AND CONTE
2342      *NTS AT 10 // 6X, 33HFORWARD POSITION AT GROSS HEIGHT 2, 18X,

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CARS NO      ****      CONTENTS      ****

2743      * INFLUENCED POSITION AT GROSS HEIGHT 3 1
2744      WRITE(6,925)
2745      WRITE(6,925) (1,VE2(1),DVE2(1),T22(1),S(1),VE3(1),DVE3(1),
2746      * T23(1),I, I=1,11 )
2747      WRITE(6,927)
2748      SET FORMAT(100,NOK, 20MET WIND LOADS AT 20 TALL// 35X, INFLUENCED PO
2749      * SITION AT GROSS HEIGHT 1 // 20X, IM1,SK,SHSHEAR,SK,SHSHEAR,SK,
2750      * SHSHEAR, SK,SHSHEAR// PLANE / 1
2751      WRITE(6,930) (1,VE0(1),DVE0(1),T20(1),S(1),I=1,11)
2752      SET FORMAT(20X, 11X, 2F10.0, SK, 1F5.1 )
2753      C
2754      WRITE(6,940)
2755      940 FORMAT(10X, 20X, 20HORIZONTAL TAIL AND CONTENTS ,
2756      I 20X,21H** SHOULD - (P147) **//)
2757      WRITE(6,941) MY,MY
2758      941 FORMAT(7X,10COORD. OF E. A., SK,3RECTION, SK, 11COORDINATES /
2759      * 11X, 1A1, SK, 10X, SK, SHSHEAR, SK, SHSHEAR, SK, SHSHEAR, SK,
2760      * SHSHEAR, SK, 1A1, 4H BAR, SK, 5H BAR / 1
2761      WRITE(6,943) YEAM(1), YEAM(1)
2762      943 FORMAT( 4X,2F10.2)
2763      WRITE(6,945) (MY(1),YE(1),MY(1),YEAM(1),YEAM(1),MY(1),
2764      * MY(1),YE(1), I=1,11 )
2765      945 FORMAT(70X,1F14.2,2F10.2/ 4X, 2F10.2, 2F14.0 )
2766      WRITE(6,945) MY(12),YE(12),MY(12),YEAM(13),YEAM(13)
2767      C
2768      WRITE(6,951)
2769      951 FORMAT(10X,30X, 20VERTICAL TAIL AND CONTENTS ,
2770      I 20X,21H** SHOULD - (P147) **//)
2771      WRITE(6,941) M2,M2
2772      WRITE(6,943) ZEAV(1), YEAM(1)
2773      WRITE(6,945) (MY(1),ZE(1),MY(1),YEAM(1),YEAM(1),MY(1),
2774      * MY(1),ZE(1), I=1,11 )
2775      WRITE(6,945) MY(12),ZE(12),MY(12),YEAM(13),YEAM(13)
2776      952 CONTINUE
2777      C
2778      C *****
2779      C
2780      CALL WRITE(1,M,D(1),300,10)
2781      C
2782      C *****
2783      C
2784      RETURN
2785      END
2786      C
2787      C *****
2788      C SUBROUTINE DSDNPR
2789      C *****
2790      C
2791      SUBROUTINE DSDNPR
2792      C
2793      COMMON TCON(4320)
2794      COMMON /MISC/ MISC(100)
2795      COMMON /PRINT/ IP(100)
2796      DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)
2797      DIMENSION EQU(200)
2798      DIMENSION DATS(40)
2799      DIMENSION TITLE(10)
2800      DIMENSION ALT(10),VH(10),VL(10),TEH(10),TEL(10),PTH(10),
2801      I PTL(10),PL(10),RIM(10),RIL(10),REN(10),REL(10),RHN(10),
2802      * REL(10),PTH(10),PHEN(10),PHL(10),PST(10),RATL(10)
2803      DIMENSION GH(10),GL(10),PO(10)
2804      DIMENSION DSP(10)
2805      EQUIVALENCE (D(1),TCON(1)),(OD(1),TCON(701)),(DV(1),TCON(1401)),
2806      I (S(1),TCON(2701)),(ND(1),TCON(4121))
2807      EQUIVALENCE (EQU(1),D(101))
2808      EQUIVALENCE (DATS(1),OD(401))
2809      EQUIVALENCE (EOTP,DATS(21))
2810      EQUIVALENCE (TITLE(1),MISC(96))
2811      EQUIVALENCE (GH(1),DV(101)),(GL(1),DV(101)),
2812      I (PO(1),DV(21))
2813      EQUIVALENCE (ALT(1),DV(11)),(VH(1),DV(11)),(VL(1),DV(71)),

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CARD NO      ****      CONTENTS      ****

2414          1 (TEMPH11,DV1411),(TEML11,DV1511),(PTH11,DV1611,
2415          2 (PTL11,DV1711),(PBL11,DV1811),(RIN11,DV1911),
2416          3 (RL11,DV1211),(RBH11,DV1221),(RBL11,DV1231),
2417          4 (RBN11,DV1241),(RL11,DV1251),(PTH11,DV1261),
2418          5 (PHEH11,DV1271),(PHL11,DV1281),(PHEL11,DV1291),
2419          6 (PST11,DV1301),(RAT11,DV1311)
2420          EQUIVALENCE (BSP11,DV1311)
2421          EQUIVALENCE (IND101),(1),IND102,J)
2422          EQUIVALENCE (IND112),140)
2423          C
2424          DO 200 I=1,9
2425          RIN(I) = EQU132) - EQU133)*V(I)
2426          RL(I) = EQU132) - EQU133)*V(I)
2427          C      SETUP CONSTANTS FOR ENGINE FACE HAPPELSHOCK PRESSURE RATIO
2428          S(1) = TEMH11/EQU134)
2429          S(2) = EQU134)/TEMH11)
2430          S(3) = TEML11/EQU134)
2431          S(4) = EQU134)/TEML11)
2432          C      GO TO PROPER CURVE FIT
2433          IF (EGTP) 10,10,20
2434          C      TURBOJET
2435          10 RBH(1) = EQU135) - EQU135)*S(1) + EQU137)*S(2) - EQU135)*S(2)**2
2436          RBL(1) = EQU135) - EQU135)*S(3) + EQU137)*S(4) - EQU135)*S(4)**2
2437          GO TO 50
2438          C      FAULET
2439          20 IF (EGTP - EQU135)) 22,22,30
2440          C      FAULET BY PASS RATIO LESS THAN OR EQUAL TO 1.5
2441          22 RBH(1) = -EQU140) + EQU141)*S(1) + EQU142)*S(2) - EQU143)*S(2)**2
2442          RBL(1) = -EQU140) + EQU141)*S(3) + EQU142)*S(4) - EQU143)*S(4)**2
2443          C      CHECK FOR APPLICABILITY OF CURVE
2444          IF (TEML11) - EQU144)) 50,50,24
2445          24 WRITE(6,90) EGTP,TEML11,EQU144)
2446          90 FORMAT(1M,20X,23H*** WARNING MESSAGE ***10X,
2447          14HLOW TEMPERATURE EXCEEDED FOR FAULET SPR =,F5.1/10X,
2448          21HLOW TEMP =,F5.2,7HINIT =,F5.2)
2449          GO TO 50
2450          30 IF (EGTP - EQU145)) 32,32,40
2451          C      FAULET SPR 0.T. 1.5 BUT L.T. GRE.T. 2.5
2452          32 RBH(1) = -EQU146) + EQU147)*S(1) + EQU148)*S(2) - EQU149)*S(2)**2
2453          RBL(1) = -EQU146) + EQU147)*S(3) + EQU148)*S(4) - EQU149)*S(4)**2
2454          IF (TEML11) - EQU150)) 50,50,34
2455          34 WRITE(6,90) EGTP,TEML11,EQU150)
2456          GO TO 50
2457          C      FAULET BY PASS RATIO GREATER THAN 2.5      BOTH FACE AND THROAT
2458          40 RBH(1) = EQU151) - EQU152)*S(1) + EQU153)*S(2) - EQU154)*S(2)**2
2459          RBL(1) = EQU151) - EQU152)*S(3) + EQU153)*S(4) - EQU154)*S(4)**2
2460          RBH(1) = RBH(1)
2461          RBL(1) = RBL(1)
2462          IF (TEML11) - EQU155)) 200,200,42
2463          42 WRITE(6,90) EGTP,TEML11,EQU155)
2464          GO TO 200
2465          C      GO THROAT HAPPELSHOCK PRESSURE RATIOS
2466          50 IF (140 - 2) 50,50,60
2467          C      FIXED GEOMETRY INLET      140=1 OR 2
2468          50 IF (141) - EQU161)) 60,60,50
2469          50 WRITE(6,61) EGTP,140,V(I),EQU161)
2470          61 FORMAT(1M,20X,23H*** WARNING MESSAGE ***10X,
2471          14HSPEED EXCEEDED FOR ENGINE INLET COMBINATION/20X,
2472          20HSR =,F5.1,3X,18HINLET TYPE =,13,3X,7HSPEED =,F5.2,3X,
2473          31HINIT SPEED =,F5.2)
2474          60 CONTINUE
2475          C      FOR BY PASS RATIO LESS THAN OR EQUAL TO 2.5
2476          C      RATIO ENGINE FACE FOR THROAT      (14-21-70)
2477          RBH(1) = (EQU162) - EQU163)*V(I) - EQU164)*V(I)**2) + RBH(1)
2478          RBL(1) = (EQU162) - EQU163)*V(I) - EQU164)*V(I)**2) + RBL(1)
2479          C
2480          C      FAULET BYPASS RATIO GREATER THAN 2.5 THROAT PRESSURE RATIO
2481          C      SAME AS ENGINE FACE - - - - SET-UP THERE.
2482          C
2483          200 CONTINUE
2484          C

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01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
2405	DO 210 1=1.0		
2406	PTHN(1) = PTH(1)+RSH(1)		
2407	PTHN(1) = PTH(1)+RSH(1)		
2408	PTLN(1) = PTL(1)+RL(1)		
2409	PTLN(1) = PTL(1)+RL(1)		
2410	PST(1) = PTL(1)/RATL(1)+RL(1)		
2411	210 CONTINUE		
2412	C TEST FOR MAXIMUM VALUE OF QL		
2413	QSP(1) = QL(1)		
2414	J=1		
2415	DO 300 1=2.0		
2416	IF(QSP(1) - QL(1)) 301,300,300		
2417	301 QSP(1) = QL(1)		
2418	J = 1		
2419	300 CONTINUE		
2500	QSP(1) = ALT(J)		
2501	QSP(2) = VHL(J)		
2502	QSP(3) = VLL(J)		
2503	QSP(4) = QHL(J)		
2504	C TEST FOR MAXIMUM DUCT PRESSURES		
2505	QSP(6) = PTHN(1)		
2506	DO 304 1=2.0		
2507	IF(QSP(6) - PTHN(1)) 302,304,304		
2508	302 QSP(6) = PTHN(1)		
2509	304 CONTINUE		
2510	QSP(7) = PHTL(1)		
2511	DO 308 1=2.0		
2512	IF(QSP(7) - PHTL(1)) 306,308,308		
2513	306 QSP(7) = PHTL(1)		
2514	308 CONTINUE		
2515	C TEST FOR MAXIMUM STATIC PRESSURE		
2516	S(51) = PST(1) - PO(1)/D(17)		
2517	QSP(8) = S(51)		
2518	DO 310 1=2.0		
2519	S(51) = PST(1) - PO(1)/D(17)		
2520	IF(QSP(8) - S(51)) 309,310,310		
2521	309 QSP(8) = S(51)		
2522	310 CONTINUE		
2523	C TEST FOR HAMMERSHOCK AT VH		
2524	S(51) = PTHN(1) - PO(1)/D(17)		
2525	QSP(9) = S(51)		
2526	DO 312 1=2.0		
2527	S(51) = PTHN(1) - PO(1)/D(17)		
2528	IF(QSP(9) - S(51)) 311,312,312		
2529	311 QSP(9) = S(51)		
2530	312 CONTINUE		
2531	C TEST FOR HAMMERSHOCK AT VL		
2532	S(51) = PHTL(1) - PO(1)/D(17)		
2533	QSP(10) = S(51)		
2534	DO 316 1=2.0		
2535	S(51) = PHTL(1) - PO(1)/D(17)		
2536	IF(QSP(10) - S(51)) 315,316,316		
2537	315 QSP(10) = S(51)		
2538	316 CONTINUE		
2539	C		
2540	IF(IP(43))5011,5011,5012		
2541	5011 CONTINUE		
2542	WRITE(6,217)(TITLE(I),N=1,10)		
2543	217 FORMAT(1H,8X,21H** DESIGN - (P(43) ****10X,BA10/10X,BA10)		
2544	WRITE(6,218) EQTP, IV0		
2545	218 FORMAT(1H,3H, 30MSPEED PROFILE DESIGN CONSTANTS		
2546	1 / 1H, 8X, 14MSPEED RATIO =, 17F8.2, 20X, 5H1V0 =, 112 /		
2547	2 1H, 4X, 14TEMP(1H), 5H, 5HSTATIC(1H), 12X, 15HAMMERSHOCK (1H) /		
2548	3 10X, 3H4LT, 12X, 3H4M, 5H, 11XDEO RANKINE, 5H, 11MPRES. RATIO,		
2549	4 5H, 4HFACE, 11X, 5HTHROAT)		
2550	WRITE(6,221)(ALT(1), VHL(1),TEMP(1),RHL(1),RSH(1),RSH(1),1=1,0)		
2551	221 FORMAT(5H, 1F13.3, 1F14.2, 1F17.3, 3F16.4)		
2552	WRITE(6,222)		
2553	222 FORMAT(1H,4X,14TEMP(1H),5H,5HSTATIC(1H),12X,15HAMMERSHOCK (1H) /		
2554	1 10X, 3H4LT, 12X, 3H4M, 5H, 11XDEO RANKINE, 5H, 11MPRES. RATIO,		
2555	2 5H, 4HFACE, 11X, 5HTHROAT)		

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
0027	END		
0028	C		
0029	C		
0030	C	SUBROUTINE DSTTRI	
0031	C		
0032	C		
0033	C	SUBROUTINE DSTTRI	
0034	C	WRITTEN 5 JULY 1972	
0035	C	TO DISTRIBUTE HEIGHT ACCORDING TO A TRIANGULAR DISTRIBUTION	
0036	C	COUNTERS I = APEX CUT, K = LAST CUT, L = FIRST CUT	
0037	C	S(201) = FRONT END OF TRIANGLE	
0038	C	S(202) = FORWARD PART OF BASE	
0039	C	S(203) = TOTAL LENGTH OF BASE	
0040	C	S(214) = C.O. OF HEIGHT TO BE DISTRIBUTED	
0041	C	S(215) = INPUT HEIGHT	
0042	C	COMMON TCOM(140)	
0043	C	DIMENSION D(700),DD(700),DV(2320),S(1400),ND(200)	
0044	C	DIMENSION ND(20),XBAR(20),DELX(20)	
0045	C	DIMENSION GOB(80),DVR(140)	
0046	C	EQUIVALENCE (D(1),TCOM(1)), (GO(1),TCOM(70)), (DV(1),TCOM(140)),	
0047	C	I (S(1),TCOM(132)), (ND(1),TCOM(12))	
0048	C	EQUIVALENCE (GOB(1),GO(38)), (DVR(1),DVR(13))	
0049	C	EQUIVALENCE (ND(1),GOB(56)), (XBAR(1),DVR(14)), (DELX(1),DVR(16))	
0050	C	EQUIVALENCE (I,ND(101)), (J,ND(102)), (K,ND(103)), (L,ND(104))	
0051	C	DO 4 J=1,20	
0052	C	S(J+220) = D(24)	
0053	C	4 CONTINUE	
0054	C	S(204) = D(24)	
0055	C	S(205) = D(24)	
0056	C	S(206) = D(24)	
0057	C	S(207) = D(24)	
0058	C	DO 20 J=L,1	
0059	C	S(J+240) = (XBAR(J) - S(201))/S(202)*DELX(J)	
0060	C	S(204) = S(204) + S(J+240)	
0061	C	S(205) = S(205) + S(J+240)*XBAR(J)	
0062	C	20 CONTINUE	
0063	C	I = I + 1	
0064	C	AFT PART OF BASE	
0065	C	S(218) = S(203) - S(202)	
0066	C	AFT END OF BASE	
0067	C	S(217) = S(201) + S(203)	
0068	C	DO 30 J=1,K	
0069	C	S(J+240) = (S(217) - XBAR(J))/S(218)*DELX(J)	
0070	C	S(204) = S(204) + S(J+240)	
0071	C	S(205) = S(205) + S(J+240)*XBAR(J)	
0072	C	30 CONTINUE	
0073	C	S(208) = S(205)/S(204)	
0074	C	IF(S(208) - S(214)) 40,70,50	
0075	C	40 DO 41 J=L,K	
0076	C	S(J+260) = (XBAR(J) - S(201))/S(203)*DELX(J)	
0077	C	S(206) = S(206) + S(J+260)	
0078	C	S(207) = S(207) + S(J+260)*XBAR(J)	
0079	C	41 CONTINUE	
0080	C	GO TO 71	
0081	C	50 DO 51 J=L,K	
0082	C	S(J+260) = (S(217) - XBAR(J))/S(203)*DELX(J)	
0083	C	S(206) = S(206) + S(J+260)	
0084	C	S(207) = S(207) + S(J+260)*XBAR(J)	
0085	C	51 CONTINUE	
0086	C	GO TO 71	
0087	C	70 S(213) = D(24)	
0088	C	S(211) = S(215)	
0089	C	GO TO 80	
0090	C	71 S(209) = S(207)/S(206)	
0091	C	S(210) = S(215)*(S(214) - S(208))/(S(209) - S(208))	
0092	C	S(211) = S(215) - S(210)	
0093	C	S(213) = S(210)/S(206)	
0094	C	80 S(212) = S(211)/S(204)	
0095	C	DO 81 J=L,K	
0096	C	S(J+220) = S(J+240)*S(212) + S(J+260)*S(213)	
0097	C	81 CONTINUE	

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS
2698	RETURN	
2699	END	
2700	C	
2701	C	=====
2702	C	SUBROUTINE DSTTRP
2703	C	=====
2704	C	
2705	C	SUBROUTINE DSTTRP
2706	C	TRAPEZOIDAL DISTRIBUTION OF WT. JULY 1972
2707	C	NOTE: INCREASING POINT VALUE --- NO(1), XBAR(1+1), NO(1+1) ETC
2708	C	AND DELX(1+1) IS DIST BTH NO(1) AND NO(1+1)
2709	C	GIVEN- S(1) = HEIGHT
2710	C	S(2) = C.O.
2711	C	S(3) = FORWARD EXTENT OF DISTRIBUTION
2712	C	S(4) = AFT EXTENT OF DISTRIBUTION
2713	C	OUTPUT J INDEX FOR FWD XBAR AT WHICH LOAD IS PLACED.
2714	C	K INDEX FOR AFT XBAR AT WHICH LOAD IS PLACED.
2715	C	S(1+20) THRU S(K+20) HEIGHTS FOR ABOVE XBAR LOCATIONS.
2716	C	
2717	C	COMMON TCOM(4320)
2718	C	DIMENSION G(700), GD(700), DV(2320), S(400), NO(200)
2719	C	, GDB(80), DVB(440), NO(20), XBAR(20), DELX(20)
2720	C	EQUIVALENCE (TCOM(1),D(1)), (TCOM(701),GD(1)), (TCOM(1401),DV(1))
2721	C	, (TCOM(3721),S(1)), (TCOM(4121),NO(1))
2722	C	, (GD(381),GDB(1)), (GDB(56),NO(1))
2723	C	, (DV(431),DVB(1)), (DVB(141),XBAR(1)), (DVB(181),DELX(1))
2724	C	, (NO(102),J), (NO(103),K), (NO(115),NC)
2725	C	NCL = NC+1
2726	C	IF(S(3) - NO(1)) 10,10,15
2727	C	FORWARD OF NO(1) SET EQUAL TO FIRST
2728	C	10 J=1
2729	C	GO TO 60
2730	C	15 N=2
2731	C	20 IF(S(3) - NO(N)) 25,30,40
2732	C	25 IF((NO(N)-S(3)) - (S(3) - NO(N-1))) 30,35,35
2733	C	30 J = N
2734	C	GO TO 60
2735	C	35 J = N - 1
2736	C	GO TO 60
2737	C	40 N=N+1
2738	C	IF(N.LE.NCL) GO TO 20
2739	C	J=NCL
2740	C	K=NCL
2741	C	C ERROR PRINT
2742	C	50 WRITE(95) S(1), S(2), S(3), S(4), J, K
2743	C	55 FORMAT('///100,45H***** IN DSTTRP, HEIGHT CANNOT BE DISTRIBUTED /
2744	C	, 10X, 34H=,1F14.2,2X, 34H=,1F9.2, 2X, 44H=, 1F9.2, 44H=,
2745	C	, 1F9.2,12H=RETURN J,K =, 113, 1H,,113)
2746	C	GO TO 102
2747	C	AFT OF LAST STATION SET TO LAST
2748	C	60 IF(S(4)-NO(NCL)) 70,85,85
2749	C	65 K=NCL
2750	C	GO TO 100
2751	C	70 N=NC
2752	C	75 IF(S(4)-NO(N)) 80,85,75
2753	C	76 IF((NO(N)-S(4)) - (S(4) - NO(N-1))) 80,80,85
2754	C	80 N=N+1
2755	C	GO TO 100
2756	C	85 N=N
2757	C	GO TO 100
2758	C	90 N=N-1
2759	C	IF(N.GE.1) GO TO 70
2760	C	N=1
2761	C	J=1
2762	C	GO TO 60
2763	C	100 IF(K-J) .LT. 1) GO TO 60
2764	C	
2765	C	IF(K - J - 1) 102,102,104
2766	C	102 CALL DSTTRP
2767	C	GO TO 600
2768	C	104 GO 100 N=5,6

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
2768	105	S(1) = D(24)	
2770		S(8) = MD(1)-MD(J-1)	
2771		S(10) = S(8)/D(2)	
2772		S(11) = MD(J-1)+S(10)	
2773		DO 110 N=J,K	
2774		S(N+60) = (S(11) - XBAR(N))/S(10)*DELX(N)	
2775		S(5) = S(5) + S(N+60)	
2776		S(6) = S(6) + S(N+60)*XBAR(N)	
2777		S(N+80) = DELX(N)/S(5)	
2778		S(7) = S(7) + S(N+80)	
2779		S(8) = S(8) + S(N+80)*XBAR(N)	
2780	110	CONTINUE	
2781		S(12) = S(8)/S(7)	
2782		S(13) = (S(11)*S(12)-S(11)*S(21))/(S(5)*S(12)-S(8))	
2783		S(14) = (S(11)-S(13)*S(5))/S(7)	
2784		DO 140 N=J,K	
2785		S(N+20) = S(N+60)*S(13) + S(N+80)*S(14)	
2786	140	CONTINUE	
2787	999	RETURN	
2788		END	
2789	C		
2790	C	*****	
2791	C	SUBROUTINE DUCGEO	
2792	C	*****	
2793	C		
2794		SUBROUTINE DUC(4,0	
2795	C	WRITTEN 23 MARCH 1972	
2796	C	TO DEVELOP DUCT GEOMETRY	
2797	C		
2798		COMMON TCOM(4,320)	
2799	C		
2800		DIMENSION D(700),OD(700),DV(2320),S(400),MD(200)	
2801		DIMENSION EQU(200)	
2802		DIMENSION DATD(70)	
2803		DIMENSION DND(100)	
2804		DIMENSION MOD(10),ROD(10),DOD(10),BUD(10),BLD(10),BSD(10),	
2805		I DLND(10),SFD(10),XBD(10)	
2806	C		
2807		EQUIVALENCE (D(1),TCOM(1)),(OD(1),TCOM(701)),(DV(1),TCOM(1401)),	
2808		I (S(1),TCOM(1372)),(MD(1),TCOM(121))	
2809		EQUIVALENCE (EQU(1),D(81))	
2810		EQUIVALENCE (DATD(1),OD(50))	
2811		EQUIVALENCE (DND(1),DV(87))	
2812		EQUIVALENCE (MOD(1),DND(1)),(ROD(1),DND(11)),(DOD(1),DND(21)),	
2813		I (BLD(1),DND(31)),(BSD(1),DND(41)),(I(50(1),DND(51)),	
2814		2 (DLND(1),DND(61)),(SFD(1),DND(71)),(XBD(1),DND(81))	
2815		EQUIVALENCE (ND(10),I), (ND(102),J)	
2816		EQUIVALENCE (ND(114),I00), (ND(117),NED), (ND(118),KCD)	
2817	C		
2818	C	SETUP INDICATORS AND COUNTERS	
2819		IF(1 - KCD) 10,20,20	
2820	C	SHAPE CODE IS 2 DEVELOP PERIMETER	
2821		10 DO 15 I=1,NCD	
2822		IF(DATD(I+60)) 15,15,12	
2823		12 DATD(I+60) = DATD(I+60)*(DATD(I+40) + DATD(I+50)*D(15)/D(2)	
2824		15 CONTINUE	
2825	C	FIT SHAPES	
2826		20 DO 200 I=1,NCD	
2827		IF(DATD(I+60)) 30,30,100	
2828	C	PERIMETER IS ZERO CHECK ON QUIDE	
2829		30 IF(DATD(I+40)) 34,34,32	
2830	C	VERTICAL LIP (INBD MEDGE)	
2831		32 100 = 1	
2832		DATD(I+60) = DATD(I+40)	
2833		GO TO 200	
2834		34 IF(DATD(I+50)) 38,38,38	
2835		38 WRITE(8,60)	
2836		60 FORMAT(30HWARNING FROM DUCGEO IN DATA MANAGEMENT /39H,23HDUCT LIP	
2837		1 GEOMETRY ERROR)	
2838	C	HORIZONTAL LIP (UPPER L.E.)	
2839		38 100 = 2	

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01/00/74      INPUT LISTING      AUTOFLUX CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

2040          DATD(1+60) = DATD(1+50)
2041          GO TO 200
2042          100 S(1) = D(1)
2043          S(2) = (D(2)*(DATD(1+40) + DATD(1+50)) - DATD(1+60))/
2044          (D(10) - D(2)*D(15))
2045          IF(S(2)) 101,101,102
2046          101 S(1) = DATD(1+60)/(D(2)*DATD(1+40) + D(2)*DATD(1+50))
2047          S(2) = D(24)
2048          IF(S(1) .GT. EQU(145) .AND. S(1) .LT. EQU(146)) GO TO 110
2049          C
2050          C      ERROR MESSAGE
2051          WRITE(6,95) J,S(1)
2052          95 FORMAT(30HWARNING FROM DUCOED IN DATA MANAGEMENT / 04 SECTION,
2053          1 113, 414 IS RECT. OR ROUNDED RECT., CORRECTION IS, 17.4 )
2054          GO TO 110
2055          C
2056          102 S(4) = AMAX1(DATD(1+40),DATD(1+50))
2057          S(5) = AMIN1(DATD(1+40),DATD(1+50))
2058          IF(S(5) - D(2)*S(2)) 109,110,110
2059          109 S(2) = S(5)/D(2)
2060          S(1) = DATD(1+60)/(D(2)*(D(15)*S(2) + S(4) - D(2)*S(2)))
2061          IF(S(1) .GT. EQU(145) .AND. S(1) .LT. EQU(146)) GO TO 110
2062          C
2063          C      ERROR MESSAGE
2064          WRITE(6,95) 1,S(1)
2065          110 S(6) = (DATD(1+50) - D(2)*S(2))*S(1)/D(2)
2066          S(3) = (DATD(1+40) - D(2)*S(2))*S(1)/D(2)
2067          IF(S(6)) 111,112,112
2068          111 S(6) = D(24)
2069          112 IF(S(3)) 114,115,115
2070          114 S(3) = D(24)
2071          115 MOD(1) = S(6)
2072          MOD(1) = S(2)*S(1)
2073          DOD(1) = S(3)
2074          BUD(1) = D(2)*MOD(1) + D(15)/D(2)*MOD(1)
2075          BLD(1) = BUD(1)
2076          BBD(1) = D(2)*DOD(1) + D(15)/D(2)*MOD(1)
2077          200 CONTINUE
2078          J = 2
2079          IF(100) 250,250,205
2080          C      CALCULATE LEADING EDGE SURFACE
2081          205 J = 3
2082          DLND(1) = DATD(12) - DATD(11)
2083          HBD(1) = DATD(11) + D(12)/D(3)*DLND(1)
2084          IF(100-1) 208,208,220
2085          208 IF(DATD(22)) 210,210,208                                00120900
2086          C      SECOND CUT IS OFFSET THEREFORE THERE ARE TWO INLETS PER MACELLE00120905
2087          209 IF(DATD(21)) 207,207,209                                00120907
2088          C      FOR VERTICAL LIP CALCULATE LIP, TWO TRIANGLES PLUS VERTICAL 00120910
2089          207 SFD(1) = DLND(1)*(DATD(6) + BSD(2)/D(2) + BUD(2) + BLD(2)) 00120920
2090          GO TO 250                                                    00120930
2091          C      SPLIT INLET AS PER FUSELAGE MOUNTED                                00120932
2092          209 SFD(1) = DLND(1)*(DATD(6) + BSD(2) + BUD(2) + BLD(2)) 00120934
2093          GO TO 250                                                    00120936
2094          C      THERE IS A SINGLE INLET PER MACELLE                                00120938
2095          210 SFD(1) = DLND(1)/D(2)*(DATD(6) + BUD(2) + BSD(2) + BLD(2))
2096          GO TO 250
2097          C      HORIZONTAL LIP                                00120940
2098          209 IF(DATD(22)) 224,224,222                                00120942
2099          C      TWO INLETS PER MACELLE                                00120944
2100          222 SFD(1) = DLND(1)*(DATD(6) + BUD(2) + BSD(2)*D(3)/D(2)) 00120946
2101          GO TO 250                                                    00120948
2102          C      ONE INLET PER MACELLE                                00120950
2103          224 SFD(1) = DLND(1)/D(2)*(DATD(6) + BUD(2) + D(2)*BSD(2)) 00120952
2104          C      CALCULATE SUBSEQUENT SECTIONS OR NOSE IF NO L.E.
2105          250 GO 300 I=J,NCD
2106          DLND(I+1) = DATD(I+10) - DATD(I+9)
2107          HBD(I+1) = DATD(I+9) + DLND(I+1)/D(2)
2108          S(1) = D(2)
2109          IF(DATD(I+20)) 260,260,262                                00121010
2110          260 IF(DATD(I+10)) 265,265,260

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CARD NO      ****      CONTENTS      ****

3124          S(214) = S(5)
3125          S(215) = S(4)
3126          I = 1
3127          IF(IND(1) - S(214)) 104,104,106
3128          104 I = NC
3129          WRITE(6,66) DMT(101),DMT(141)
3130          66 FORMAT(21H** FUSED? WARNING ** /10X,20HCHECK MT AND CO DATA,
3131          * /10X,33HFULCRAGE MT DIST IS NOT REALISTIC,/10X,40MT =,F10.2,
3132          * 3X,40CO =,F8.2)
3133          GO TO 106
3134          106 IF(ND(1) - S(214)) 107,106,108
3135          107 I = I + 1
3136          GO TO 106
3137          108 K = NC + 1
3138          L = 1
3139          CALL DS1TR)
3140          DO 110 I=1,K
3141          MFUS(I) = MFUS(I) + S(1+220)
3142          110 CONTINUE
3143          RETURN
3144          END

3145          C
3146          C *****
3147          C          SUBROUTINE FUSGEO
3148          C *****
3149          C
3150          C          SUBROUTINE FUSGEO
3151          C          INITIAL ROUTINE FOR EXTERNAL SHELL GEOMETRY          70020620
3152          C          FAMILY OF ROUNDED RECTANGLES          70020630
3153          C          70020650
3154          C          COMMON TCOM(4320)
3155          C          70020660
3156          C          DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
3157          C          DIMENSION EQU(200)
3158          C          DIMENSION GDB(80),DNB(140)
3159          C          DIMENSION XI(10),ZI(10),DI(10),MI(10),PI(10),ND(20)
3160          C          DIMENSION ZO(20),RCU(20),RCL(20),RCS(20),BU(20),BL(20),
3161          C          1 BS(20),XBAR(20),DELX(20),SF(20),VOL(20),GDB(20),ND(20),RO(20),
3162          C          2 PER(20)
3163          C          DIMENSION SI(20),SZ(20),S3(20),TOT(20)
3164          C          DIMENSION UIX(20),UIY(20),UIZ(20)
3165          C          70020670
3166          C          EQUIVALENCE (D(1),TCOM(1)),(GD(1),TCOM(701)),(DV(1),TCOM(1401)),
3167          C          1 (S(1),TCOM(3721)),(ND(1),TCOM(4121))
3168          C          EQUIVALENCE (EQU(1),D(81))
3169          C          EQUIVALENCE (GDB(1),GD(301)),(DNB(1),DNB(131))
3170          C          EQUIVALENCE (XI(1),GDB(61)),(ZI(1),GDB(161)),(DI(1),GDB(261)),
3171          C          1 (MI(1),GDB(361)),(PI(1),GDB(461)),(ND(1),GDB(561))
3172          C          EQUIVALENCE (ZO(1),DNB(11)),(RCU(1),DNB(21)),(RCL(1),DNB(31)),
3173          C          1 (RCS(1),DNB(41)),(BU(1),DNB(51)),(BL(1),DNB(61)),
3174          C          2 (BS(1),DNB(121)),(XBAR(1),DNB(141)),(DELX(1),DNB(161)),
3175          C          3 (SF(1),DNB(181)),(VOL(1),DNB(201)),(GDB(1),DNB(221)),
3176          C          4 (ND(1),DNB(241)),(RO(1),DNB(261)),(PER(1),DNB(281))
3177          C          EQUIVALENCE (SI(1),DNB(301)),(SZ(1),DNB(321)),(S3(1),DNB(341)),
3178          C          1 (TOT(1),DNB(361))
3179          C          EQUIVALENCE (UIX(1),DNB(381)),(UIY(1),DNB(401)),(UIZ(1),DNB(421))
3180          C          EQUIVALENCE (TOT(1),STOT),TOT(2),VOL)
3181          C          EQUIVALENCE (ND(15),NC), (ND(16),KC)
3182          C          EQUIVALENCE SCRATCH COUNTERS          70020610
3183          C          EQUIVALENCE (ND(18),I), (ND(19),J)
3184          C          70020680
3185          C          20 = FUSELAGE WATER PLANE FOR EVALUATION          70020670
3186          C          ND = FLAT HORIZONTAL          70020680
3187          C          GOO = FLAT VERTICAL          70020690
3188          C          DESCRIPTION OF OUTPUT ARRAYS          70020690
3189          C          XBAR = CENTROID OF SEGMENT          DELX = SEGMENT LENGTH          70020700
3190          C          BU = UPPER PANEL CIRCUM          BL = LOWER PANEL CIRCUM          70020710
3191          C          BS = SIDE PANEL CIRCUM          RCU = RADIUS OF CURVATURE UPPER          70020720
3192          C          RCL = RADIUS OF CURVATURE LOWER          RCS = RADIUS OF CURVATURE SIDE          70020730
3193          C          PER = PERIMETER          RO = CORNER RADIUS          70020740
3194          C          SF = SURFACE AREA SEGMENT          VOL = VOLUME OF SEGMENT          70020750
3195          C          70020760

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01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO.	CONTENTS		
3105	C DESCRIPTION OF INPUT ARRAYS		70020470
3106	C Z1 = FUELAGE WATER PLANE FOR GEOMETRY		70020480
3107	C X1 = FUS STATION FOR GEOMETRY D1 = FUS DEPTH		70020490
3108	C M1 = FUS WIDTH P1 = PERIMETER - KC = 1		70020500
3109	C P1 = PERIMETER CORRECTION - KC=2 MD = FUS STATION FOR EVALUATION		70020510
3200	C I = INPUT GEOMETRY COUNTER		70020520
3201	C J = OUTPUT GEOMETRY COUNTER		70020530
3202	C		70020540
3203	C SCRATCH ARRAYS		70020550
3204	C S1 = DEPTH S2 = WIDTH		70020560
3205	C S3 = AREA CROSS-SECTION		70020570
3206	IF(I-KC)10,10,15		70020580
3207	C		70020590
3208	C CONVERT PERIMETER CORRECTION TO PERIMETER AND SUBSTITUTE		70020600
3209	10 DO 12 I=1,10		70020610
3210	P(I) = P(I) + (D(I) + M(I)) * (S1/D(I) + S2/M(I))		70020620
3211	12 CONTINUE		70020630
3212	15 I = 2		70020640
3213	J = 1		70020650
3214	STOT = D(24)		70020660
3215	WLT = D(24)		70020670
3216	C		70020680
3217	C STRAIGHT LINE INTERPOLATION		70020690
3218	TOT(10) = D(1)		70020700
3219	TOT(20) = M(1)		70020710
3220	20 IF(MD(J)-X1(I))21,21,22		70020720
3221	21 S(1) = (MD(J) - X1(I) - 1) / (X1(I) - X1(I) - 1)		70020730
3222	S(1) = D(1) - 1 + S(1) * (D(1) - D(1) - 1)		70020740
3223	S(2) = M(1) - 1 + S(1) * (M(1) - M(1) - 1)		70020750
3224	PER(J) = P(1) - 1 + S(1) * (P(1) - P(1) - 1)		70020760
3225	ZD(J) = Z(1) - 1 + S(1) * (Z(1) - Z(1) - 1)		70020770
3226	IF(TOT(10) - S(1)) 31,32,32		70020780
3227	31 TOT(10) = S(1)		70020790
3228	32 IF(TOT(20) - S(2)) 33,34,34		70020800
3229	33 TOT(20) = S(2)		70020810
3230	34 CONTINUE		70020820
3231	J = J+1		70020830
3232	IF(J-KC)20,20,100		70020840
3233	22 I = I+1		70020850
3234	GO TO 20		70020860
3235	C		70020870
3236	C SHAPE FIT		70020880
3237	100 DO 200 J=1,KC		70020890
3238	S(1) = D(1)		70020900
3239	S(2) = (D(2) * S(1) + D(2) * S(2) - PER(J) / (D(1) - D(2) * D(1)))		70020910
3240	IF(S(2))101,101,102		70020920
3241	101 S(1) = PER(J) / (D(2) * S(1) + D(2) * S(2))		70020930
3242	S(2) = D(24)		70020940
3243	IF(S(1) .GT. EQU(15) .AND. S(1) .LT. EQU(16)) GO TO 110		70020950
3244	C		70020960
3245	C ERROR MESSAGE		70020970
3246	WRITE(6,51)		70020980
3247	51 FORMAT(30HWARNING FROM FUSED IN DATA MANAGEMENT)		70020990
3248	WRITE(6,60) J,S(1)		70021000
3249	60 FORMAT(34H SECTION,113,34H IS RECTANGULAR, CORR. FACTOR IS,F6.3)70021010		70021020
3250	GO TO 110		70021030
3251	102 S(4) = MAX(1(S(1),S(2)))		70021040
3252	S(5) = MIN(1(S(1),S(2)))		70021050
3253	IF(S(5) - D(2) * S(2)) 109,110,110		70021060
3254	109 S(2) = S(5) / D(2)		70021070
3255	S(1) = PER(J) / (D(2) * (D(1) * S(2) + S(4) - D(2) * S(2)))		70021080
3256	IF(S(1) .GT. EQU(15) .AND. S(1) .LT. EQU(16)) GO TO 110		70021090
3257	C		70021100
3258	C ERROR MESSAGE		70021110
3259	WRITE(6,61)		70021120
3260	WRITE(6,65) J,S(1)		70021130
3261	65 FORMAT(34H SECTION,113,34H IS ROUNDED RECT., CORR. FACTOR IS,F6.3)70021140		70021150
3262	110 S(6) = (S(1) - D(2) * S(2)) * S(1) / D(2)		70021160
3263	S(3) = (S(1) - D(2) * S(2)) * S(1) / D(2)		70021170
3264	IF(S(6))111,112,112		70021180
3265	111 S(6) = D(24)		70021190

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
3005	112 IF (S(3) > 114, 115, 115		70021000
3007	114 S(3) = D(2)		70021100
3008	115 MD(J) = S(5)		70021110
3009	MD(J) = S(2)*S(1)		70021120
3070	MD(J) = S(3)		70021130
3071	S(3) = D(15)*MD(J)**2 + D(14)*MD(J)**MD(J)*MD(J) +		70021140
3072	D(14)*MD(J)*MD(J)		70021150
3073	MD(J) = D(2)*MD(J) + D(15)/D(2)*MD(J)		70021160
3074	MD(J) = MD(J)		70021170
3075	MD(J) = D(2)*MD(J) + D(15)/D(2)*MD(J)		70021180
3076	IF (D(2) - MD(J) > 110, 110, 200		70021190
3077	110 S(1) = MD(J)*D(1) - D(25)/D(2)		70021200
3078	S(2) = MD(J)*D(25)/D(2) + MD(J)		70021210
3079	S(3) = MD(J)*D(25)/D(2) + MD(J)		70021220
3080	MD(J) = S(1)**2 + S(2)**2 + D(2)/S(1)		70021230
3081	MD(J) = MD(J)		70021240
3082	MD(J) = S(1)**2 + S(2)**2 + D(2)/S(1)		70021250
3083	C IF R(2.0) ASSUME RADIUS OF CURVATURE IS INFINITY IE FLAT PANEL		70021260
3084	200 CONTINUE		70021270
3085	C		70021280
3086	C NOSE CONE GEOMETRY		70021290
3087	S(1) = P(1)/D(2)/D(15)		70021300
3088	S(2) = PER(1)/D(2)/D(15)		70021310
3089	DELX(1) = MD(1) - X(1)		70021320
3090	SF(1) = D(15)*S(1)*S(2)**DELX(1)**2 + (S(2)-S(1))**2**5		70021330
3091	MDAR(1) = MD(1) - DELX(1)/D(3)*D(2)*S(1) + S(2)/(S(1)*S(2))		70021340
3092	VOL(1) = D(15)*DELX(1)/D(3)*S(2)**2 + S(2)*S(1) + S(1)**2		70021350
3093	DO 300 J=2, NC		70021360
3094	MDAR(J) = MD(J) + MD(J-1)/D(2)		70021370
3095	DELX(J) = MD(J) - MD(J-1)		70021380
3096	IF (DELX(J) - D(2) > 301, 301, 302		70021390
3097	C		70021400
3098	C SHARP DISCONTINUITY IN GEOMETRY		70021410
3099	301 SF(J) = PER(J)*DELX(J)		70021420
3100	VOL(J) = DELX(J)*S(3)		70021430
3101	GO TO 300		70021440
3102	C		70021450
3103	C NORMAL GEOMETRIC TRANSITION		70021460
3104	302 S(1) = PER(J-1)/D(2)/D(15)		70021470
3105	S(2) = PER(J)/D(2)/D(15)		70021480
3106	SF(J) = D(15)*S(1)*S(2)**DELX(J)**2 + (S(2)-S(1))**2**5		70021490
3107	VOL(J) = DELX(J)/D(3)*S(3)*S(2-1) + (S(3)*S(2-1))**5		70021500
3108	300 CONTINUE		70021510
3109	C		70021520
3110	C TAIL CONE GEOMETRY		70021530
3111	J = NC		70021540
3112	S(1) = PER(J)/D(2)/D(15)		70021550
3113	S(2) = P(10)/D(2)/D(15)		70021560
3114	MD(J-1) = X(10)		70021570
3115	ZD(J-1) = Z(10)		
3116	DELX(J-1) = X(10) - MD(J)		70021580
3117	MDAR(J-1) = MD(J) + DELX(J-1)/D(3)*D(2)*S(2) + S(1)/(S(2)*S(1))		70021590
3118	SF(J-1) = D(15)*S(1)*S(2)**DELX(J-1)**2 + (S(1)-S(2))**2**5		70021600
3119	VOL(J-1) = D(15)*DELX(J-1)/D(3)*S(2)**2 + S(1)*S(2) + S(2)**2		70021610
3120	I = NC-1		70021620
3121	DO 400 J=1, I		70021630
3122	STOT = STOT + SF(J)		70021640
3123	VOLT = VOLT + VOL(J)		70021650
3124	400 CONTINUE		70021660
3125	C DESCRIPTION OF OUTPUT ARRAYS		70030370
3126	UIX = UNIT ROLL INERTIA UIY = UNIT PITCH INERTIA		70030380
3127	C UIZ = UNIT YAW INERTIA		70030390
3128	C		70030400
3129	C NOSE CONE		70030410
3130	S(1) = P(1)/D(2)/D(15)		70030420
3131	S(2) = PER(1)/D(2)/D(15)		70030430
3132	S(3) = MD(1) - MDAR(1)		70030440
3133	UIX(1) = D(15)*D(10)*S(1)**4 + S(1)**3*S(2) + S(1)**2*S(2)**2 +		70030450
3134	S(1)*S(2)**3 + S(2)**4/(S(1)**2 + S(1)*S(2) + S(2)**2)		70030460
3135	UIY(1) = UIX(1)/D(2) + D(3)*D(10)/D(10)*S(3)**2		70030470
3136	UIZ(1) = UIY(1)		70030480

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CARD NO	CONTENTS		
3337	GO 500 J=2,NC		
3338	IF(DELX(J) - D(2)) 501,501,502		
3339	C		70030500
3340	C SHARP DISCONTINUITY IN GEOMETRY		70030510
3341	501 S(4) = D(4)*MD(J)**2+D(1)*RO(J)**2 + D(4)*RO(J)**2+D(1)*		
3342	10(15)*RO(J)**2		70030530
3343	S(5) = D(4)/D(3)*MD(J)**2+D(1)*RO(J)**2 + D(4)/D(3)*RO(J)*		70030540
3344	1000(J)**2 + D(15)/D(4)*RO(J)**4 + D(15)*RO(J)**2+D(1)*		70030550
3345	S(6) = D(4)/D(3)*D(1)*MD(J)*RO(J)**2 + D(4)/D(3)*RO(J)*		70030560
3346	MD(J)**2 + D(15)/D(4)*RO(J)**4 + D(15)*RO(J)**2+MD(J)**2		70030570
3347	503 U(X(J) = S(5) + S(6)/S(4)		
3348	U(Y(J) = S(5)/S(4) + DELX(J)**2/D(12)		70030590
3349	U(Z(J) = S(6)/S(4) + DELX(J)**2/D(12)		70030600
3350	GO TO 500		
3351	C		70030620
3352	C NORMAL GEOMETRY TRANSITION		70030630
3353	C USE NORMAL SEGMENT SHAPE		70030640
3354	502 S(1) = (D(1)*J + D(1)*J-1)/D(2)		
3355	S(2) = (MD(J) + MD(J-1))/D(2)		70030660
3356	S(3) = (RO(J) + RO(J-1))/D(2)		70030670
3357	S(4) = D(4)*S(2)*(S(1)+S(3)) + D(4)*S(3)*S(1) + D(15)*S(3)**2		70030680
3358	S(5) = D(4)/D(3)*S(2)*(S(1)+S(3)) + D(4)/D(3)*S(3)*S(1)**2 +		70030690
3359	10(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(1)**2		70030700
3360	S(6) = D(4)/D(3)*S(1)*(S(2)+S(3)) + D(4)/D(3)*S(3)*S(2)**2 +		70030710
3361	10(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(2)**2		70030720
3362	GO TO 503		
3363	500 CONTINUE		
3364	C		70030750
3365	C TAIL CONE		70030760
3366	J = NC		70030770
3367	S(1) = PER(J)/D(2)/D(15)		70030780
3368	S(2) = P(10)/D(2)/D(15)		70030790
3369	S(3) = (BAR(J)-1) - MD(J)		70030800
3370	U(X(J+1) = D(3)/D(10)*(S(1)**4 + S(1)**3*S(2) + S(1)**2*S(2)**2 +		70030810
3371	S(1)**S(2)**3 + S(2)**4)/(S(1)**2 + S(1)*S(2) + S(2)**2)		70030811
3372	U(Y(J+1) = U(X(J+1)/D(2) + D(3)/D(10)/D(10)/D(10)*S(1)**2		70030820
3373	U(Z(J+1) = U(Y(J+1)		70030830
3374	RETURN		70030890
3375	END		
3376	C		
3377	C		
3378	C SUBROUTINE MACDO		
3379	C		
3380	C		
3381	C SUBROUTINE MACDO		
3382	C WRITTEN 6 APRIL 1972		
3383	C TO DEVELOP MACELLE GEOMETRY		
3384	C		
3385	C COMMON TCON(4320)		
3386	C		
3387	DIMENSION D(700),DD(700),DV(2320),S(400),ND(200)		
3388	DIMENSION BATH(70)		
3389	DIMENSION DWH(150)		
3390	DIMENSION EQU(200)		
3391	DIMENSION MDH(10),RCH(10),DCH(10),BLH(10),BSH(10),		
3392	1 BLH(10),BTH(10),RCH(10),RCH(10),RCH(10),MDH(10)		
3393	DIMENSION U1BH(10),U1YH(10),U1ZH(10)		
3394	EQUIVALENCE (D(1),TCON(1)),(DD(1),TCON(701)),(DV(1),TCON(1401)),		
3395	1 (S(1),TCON(1771)),(ND(1),TCON(4121))		
3396	EQUIVALENCE (EQU(1),D(8))		
3397	EQUIVALENCE (BATH(1),DD(90))		
3398	EQUIVALENCE (DWH(1),DV(97))		
3399	EQUIVALENCE (MDH(1),DWH(1)),(RCH(1),DWH(1)),(DCH(1),DWH(2)),		
3400	1 (BLH(1),DWH(3)),(BLH(1),DWH(4)),(BSH(1),DWH(5)),		
3401	2 (BLH(1),DWH(6)),(BTH(1),DWH(7)),(RCH(1),DWH(8)),		
3402	3 (RCH(1),DWH(9)),(RCH(1),DWH(10)),(MDH(1),DWH(11))		
3403	EQUIVALENCE (U1BH(1),DWH(12)),(U1YH(1),DWH(13)),		
3404	1 (U1ZH(1),DWH(14))		
3405	EQUIVALENCE (ND(10),1),ND(102),J1		
3406	EQUIVALENCE (MDH,ND(110)),(RCH,ND(120)),(DCH,ND(130)),		
3407	C		

01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
3400	C		
3401	C SETUP INDICATORS AND COUNTERS		
3410	IF(1) - NON(1) 10,20,20		
3411	C SHAPE CODE IS 2 DEVELOP PERIMETER		
3412	10 DO 10 I=1,NON		
3413	IF(DATN(I+50)) 15,15,12		
3414	12 DATN(I+50) = DATN(I+50)*(DATN(I+40) + DATN(I+50))/D(12)		
3415	15 CONTINUE		
3416	C FIT SHAPES		
3417	20 DO 200 I=1,NON		
3418	IF(DATN(I+50)) 30,30,100		
3419	C PERIMETER IS ZERO CHECK ON GUIDE		
3420	30 IF(DATN(I+40)) 34,34,32		
3421	C VERTICAL LIP		
3422	32 ION = 1		
3423	DATN(I+50) = D(24)		
3424	GO TO 200		
3425	34 IF(DATN(I+50)) 30,30,35		
3426	30 WRITE(6,60)		
3427	60 FORMAT (40H0 WARNING FROM NAGGED IN DATA MANAGEMENT,10X, 120H VERTICAL LIP GEOMETRY ERROR)		
3428	C HORIZONTAL LIP (UPPER L E I)		
3430	35 ION = 2		
3431	DATN(I+50) = DATN(I+50)		
3432	GO TO 200		
3433	C FULL SECTION		
3434	100 S(1) = D(1)		
3435	S(2) = (D(2)*(DATN(I+40) + DATN(I+50)) - DATN(I+50))/		
3436	(D(1) - D(2)*D(15))		
3437	IF(S(2)) 101,101,102		
3438	101 S(1) = DATN(I+50)/(D(2)*DATN(I+40) + D(2)*DATN(I+50))		
3439	S(2) = D(24)		
3440	IF(S(1)) .GT. EQUI(45) .AND. S(1) .LT. EQUI(46)) GO TO 110		
3441	C		
3442	C ERROR MESSAGE		
3443	GO TO 100		
3444	102 S(4) = AMAX1(DATN(I+40),DATN(I+50))		
3445	S(5) = AMIN1(DATN(I+40),DATN(I+50))		
3446	IF(S(5) - D(2)*S(2)) 104,110,110		
3447	104 S(2) = S(5)/D(2)		
3448	S(1) = DATN(I+50)/(D(2)*(D(15)*S(2) + S(4) - D(2)*S(2)))		
3449	IF(S(1)) .GT. EQUI(45) .AND. S(1) .LT. EQUI(46)) GO TO 110		
3450	C		
3451	C ERROR MESSAGE		
3452	100 WRITE (6,95) 1, S(1)		
3453	95 FORMAT (40H0 WARNING FROM NAGGED IN DATA MANAGEMENT /SH SECTION, 113,47H IS RECTANGLE OR ROUNDED RECT., CORR. FACTOR IS, 1F6.3)		
3454	C		
3455	110 S(6) = (DATN(I+50) - D(2)*S(2))*S(1)/D(2)		
3457	S(3) = (DATN(I+40) - D(2)*S(2))*S(1)/D(2)		
3458	IF(S(6)) 111,112,112		
3459	111 S(6) = D(24)		
3460	112 IF(S(3)) 114,115,115		
3461	114 S(3) = D(24)		
3462	115 NON(1) = S(6)		
3463	RON(1) = S(2)*S(1)		
3464	DOH(1) = S(3)		
3465	BLN(1) = D(2)*NON(1) + D(15)/D(2)*RON(1)		
3466	BLN(1) = BLN(1)		
3467	DOH(1) = D(2)*DOH(1) + D(15)/D(2)*RON(1)		
3468	IF(D(2) - RON(1)) 116,116,200		
3469	116 S(1) = RON(1)*(D(1) - D(25)/D(2))		
3470	S(2) = RON(1)*D(25)/D(2) + DOH(1)		
3471	S(3) = RON(1)*D(25)/D(2) + NON(1)		
3472	RCUN(1) = (S(1)**2 + S(3)**2)/D(2)/S(1)		
3473	RCLN(1) = RCLN(1)		
3474	RCON(1) = (S(1)**2 + S(2)**2)/D(2)/S(1)		
3475	C IF R(2,0) ASSUME RADIUS OF CURVATURE IS INFINITY IE FLAT PANEL		
3476	200 CONTINUE		
3477	J = 2		
3478	IF(ION) 250,250,205		

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01/08/74      INPUT LISTING      AUTOFLOW CHART SET - SHEEP      DATA MANAGEMENT MODULE

CARD NO      ****      CONTENTS      ****

3470      C      CALCULATE LEADING EDGE SURFACE
3480      DO 3 J = 3
3490      BLN(1) = DATN(12) - DATN(11)
3500      HSN(1) = DATN(11) + D(2)/D(3)*BLN(1)
3510      IF(10N - 1) 210,210,220
3520      210 SFN(1) = BLN(1)/D(2)*(BLN(2) + BLN(2))
3530      GO TO 250
3540      220 SFN(1) = BLN(1)/D(2)*(DATN(11) + BLN(2) + D(2)*HSN(2))
3550      C      CALCULATE SUBSEQUENT SECTIONS OR NOSE IF NO L.E.
3560      350 DO 300 I=J,NCH
3570      BLN(I-1) = DATN(I-10) - DATN(I-9)
3580      HSN(I-1) = DATN(I-9) + BLN(I-1)/D(2)
3590      SFN(I-1) = BLN(I-1)/D(2)*(DATN(I-60) + DATN(I-59))
3600      300 CONTINUE
3610      C      DESCRIPTION OF OUTPUT ARRAYS
3620      C      U10N = UNIT ROLL INERTIA      U12N = UNIT PITCH INERTIA
3630      C      U12N = UNIT YAW INERTIA
3640      J = 2
3650      IF(10N) 700,700,702
3660      702 J = 3
3670      C      CALCULATE LIP
3680      IF(10N - 1) 704,704,710
3690      C      VERTICAL LIP
3700      704 S(1) = DATN(42)**2/D(4)
3710      S(2) = DATN(52)**2/D(2)/D(12)
3720      S(3) = BLN(11)**2/D(2)/D(9)
3730      U10N(1) = S(2) + S(1)
3740      U12N(1) = S(3) + S(1)
3750      U12N(1) = S(2) + S(3)
3760      GO TO 720
3770      C      HORIZONTAL LIP
3780      710 S(1) = HSN(2)*BLN(1)
3790      S(2) = BLN(2)*BLN(1)
3800      S(4) = DATN(42)**2/D(2)/D(9)*S(1)
3810      S(5) = DATN(52)**2/D(12)*S(2)
3820      S(6) = DATN(52)**2/D(4)*S(1)
3830      S(7) = DATN(42)**2/D(9)*S(2)
3840      S(8) = BLN(11)**2/D(2)/D(9)*S(1)
3850      S(9) = BLN(11)**2/D(9)*S(2)
3860      U10N(1) = (S(4) + S(5) + S(6) + S(7))/SFN(1)
3870      U12N(1) = (S(4) + S(7) + S(8) + S(9))/SFN(1)
3880      U12N(1) = (S(5) + S(6) + S(8) + S(9))/SFN(1)
3890      C      NORMAL GEOMETRY
3900      720 DO 740 I=J,NCH
3910      S(1) = (DSN(I) + DSN(I-1))/D(2)
3920      S(2) = (DSN(I) + DSN(I-1))/D(2)
3930      S(3) = (DSN(I) + DSN(I-1))/D(2)
3940      S(4) = D(4)*S(2)*S(1) + S(3) + D(4)*S(3)*S(1) + D(1)*S(3)**2
3950      S(5) = D(4)/D(3)*S(2)*S(1) + S(3)**3 + D(4)/D(3)*S(3)*S(1)**3 +
3960      1 D(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(1)**2
3970      S(6) = D(4)/D(3)*S(1)*S(2) + S(3)**3 + D(4)/D(3)*S(3)*S(2)**3 +
3980      1 D(15)/D(4)*S(3)**4 + D(15)*S(3)**2*S(2)**2
3990      U10N(I-1) = (S(5) + S(6))/S(4)
4000      U12N(I-1) = S(5)/S(4) + BLN(I-1)**2/D(12)
4010      U12N(I-1) = S(6)/S(4) + BLN(I-1)**2/D(12)
4020      740 CONTINUE
4030      *** EXIT ***
4040      C      RETURN
4050      END
4060
4070      C
4080      C (*****)
4090      C      SUBROUTINE HDSGEO
4100      C (*****)
4110      C
4120      C      SUBROUTINE HDSGEO
4130      C
4140      C      JULY 1972
4150      C      COMMON TCON(4320)
4160      DIMENSION D(700),GD(700),DV(2320),S(400),ND(200)
4170      *, GDS(80), DND(440), BC(200), DWH(50), DWH(30)
4180      *, DELX(80), VDL(20), GS(20), ND(20), X(10), EQU(200)
4190      EQUIVALENCE (TCON(1),D(1)), (TCON(701),GD(1)), (TCON(1401),DV(1))

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CARD NO      ****      CONTENTS      ****
3000          C, (TCOH(370),S(1)), (TCOH(412),ND(1))
3001          C, (DV(321),DWH(1)), (DV(371),DWH(1)), (DV(431),DVB(1))
3002          C, (DVB(101),DELX(1)), (DVB(201),VOL(1)), (DVB(341),S(1))
3003          C, (OD(301),ODB(1)), (ODB(01),XI(1)), (ODB(50),ND(1))
3004          C, (ND(115),NC)
3005          C, (DV(212),BC(1)), (EQU(1),D(0))
3006          C BC(33) X SUB 0 DIST. FROM X REFERENCE TO BODY NOSE INCHES
3007          C BC(34) SHL SUB N LENGTH OF NOSE INCHES
3008          C BC(35) V SUB N VOLUME OF NOSE CUBIC INCHES
3009          C BC(36) R SUB N RADIUS AT BASE OF NOSE INCHES
3010          C DEFINE AFT STATION OF NOSE SECTION BY SMALLEST OF FOLLOWING 3 POINTS
3011          C (1) APX OF WING OR HORIZONTAL WHICH EVER IS SMALLEST.
3012          C (2) 1ST. FUSELAGE POINT WHERE CROSS SEC. AREA IS CONST. OR DECREAS
3013          C (3) STATION WHERE DELX IS LESS THAN OR EQU TO 2.0 (START DUCTS)
3014          BC(33) = XI(1)
3015          S(3) = XI(10)
3016          S(1) = AMIN1(DWH(47), DWH(4))
3017          N=1
3018          70 IF(S(3)-S(3+N-1)) 75,80,80
3019          75 N=N+1
3020          IF(N.LE.NC) GO TO 70
3021          80 S(2) = ND(N)
3022          DO 80 N=1,NC
3023          IF(DELX(N).GT.D(2)) GO TO 90
3024          85 IF(S(3)-EQU(144) - S(3+N-1)) 85,86,90
3025          86 S(3) = ND(N)
3026          GO TO 95
3027          90 CONTINUE
3028          95 S(4) = AMIN1(S(1),S(2),S(3))
3029          BC(34) = S(4) - XI(1)
3030          N=0
3031          S(5)=D(24)
3032          100 N=N+1
3033          IF(ND(N)-S(4))105,110,115
3034          105 S(5) = S(5)+VOL(N)
3035          GO TO 100
3036          110 S(5) = S(5)+VOL(N)
3037          S(6) = S(3)
3038          GO TO 120
3039          115 S(6) = S(3)-1 + (S(3)-S(3-N-1))*(S(4)-ND(N-1))/(ND(N)-ND(N-1))
3040          S(5) = S(5) + (S(4)-ND(N-1))*((S(3)-1)+S(6))/D(2)
3041          120 BC(35) = S(5)
3042          BC(36) = (S(6)/D(15))*D(10)
3043          RETURN
3044          END
3045          C
3046          C (*****)
3047          C SUBROUTINE PRTOHE
3048          C (*****)
3049          C
3050          C SUBROUTINE PRTOHE
3051          C WRITTEN SEPT. 1972 OPERATIONAL HEIGHT EMPTY AND EXPEND. USEFUL
3052          C LOAD PRINT SUBROUTINE
3053          C
3054          C COMMON TCOH(4320)
3055          C
3056          C DIMENSION U(700), OD(700), DV(2320), S(400), ND(200)
3057          C DIMENSION GAWT(100)
3058          C DIMENSION DWAT(1000)
3059          C DIMENSION F(40), M(20), H(10), V(10), A(20), AD(20)
3060          C DIMENSION T(6,40)
3061          C
3062          C EQUIVALENCE (D(1),TCOH(1)), (OD(1),TCOH(70)), (DV(1),TCOH(140)),
3063          C (S(1),TCOH(370)), (ND(1),TCOH(412))
3064          C EQUIVALENCE (ODMT(1),OD(0))
3065          C EQUIVALENCE (DWH(1),DV(112))
3066          C EQUIVALENCE (F(1),DWH(10)), (M(1),DWH(10)), (H(1),DWH(22)),
3067          C (V(1),DWH(24)), (A(1),DWH(26)), (AD(1),DWH(30))
3068          C EQUIVALENCE (T(1,1),S(1))
3069          C PRINT BREAK DOWN FROM T(I,J) WHERE I=COMPONENT, J=LINE NO.
3070          C

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01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
3021	DO 10 M=1,240		
3022	S(M) = D1241		
3023	10 CONTINUE		
3024	T(2,1) = M(1)		
3025	T(3,2) = M(1)		
3026	T(4,3) = V(1)		
3027	T(1,4) = F(1)		
3028	T(1,5) = F(2)		
3029	T(2,5) = M(2)		
3030	T(1,6) = F(3)		
3031	T(1,7) = F(4)+F(5)		
3032	T(2,7) = M(3)		
3033	T(3,7) = M(2)		
3034	T(4,7) = V(2)		
3035	T(5,8) = A(1)		
3036	T(6,8) = A(1)		
3037	T(1,9) = F(6)		
3038	T(5,10) = A(2)		
3039	T(6,10) = A(2)		
3040	T(5,11) = A(3)		
3041	T(6,11) = A(3)		
3042	T(5,12) = A(4)		
3043	T(6,12) = A(4)		
3044	T(5,13) = A(5)		
3045	T(6,13) = A(5)		
3046	T(5,14) = A(6)		
3047	T(6,14) = A(6)		
3048	T(5,15) = A(7)		
3049	T(6,15) = A(7)		
3050	T(5,16) = A(8)		
3051	T(6,16) = A(8)		
3052	T(1,17) = F(7)		
3053	T(2,17) = M(4)		
3054	T(1,18) = F(8)		
3055	T(5,19) = A(9)		
3056	T(6,19) = A(9)		
3057	T(1,20) = F(9)		
3058	T(5,20) = A(10)		
3059	T(6,20) = A(10)		
3060	T(1,21) = F(10)		
3061	T(2,21) = M(5)		
3062	T(5,21) = A(11)		
3063	T(6,21) = A(11)		
3064	T(1,22) = F(11)		
3065	T(5,22) = A(12)		
3066	T(6,22) = A(12)		
3067	T(1,23) = F(12)		
3068	T(5,23) = A(13)		
3069	T(6,23) = A(13)		
3070	T(1,24) = F(13)		
3071	T(1,25) = F(14)		
3072	T(1,26) = F(15)		
3073	T(1,27) = F(16)		
3074	T(5,27) = A(14)		
3075	T(6,27) = A(14)		
3076	T(1,28) = F(17)		
3077	T(1,29) = F(18)		
3078	T(1,30) = F(19)		
3079	T(1,31) = F(20)		
3080	T(1,32) = F(21)		
3081	T(2,32) = M(6)		
3082	T(5,32) = A(15)		
3083	T(6,32) = A(15)		
3084	T(1,34) = F(22)		
3085	T(1,35) = F(23)		
3086	T(1,36) = F(24)		
3087	T(2,37) = M(7)		
3088	T(5,38) = M(8)		
3089	T(1,39) = F(25)		
3090	T(1,40) = F(26)		
3091	C		

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CARD NO      ****      CONTENTS      ****

3602      C
3603      WRITE(6,20)
3604      20 FORMAT(1M,8X,21M** PRTOE - (P146) **/
3605      1      8M+ DATA MANAGEMENT *** OPERATIONAL HEIGHT EMPTY *** /
3606      1 10X. 30MTOTAL AND MAJOR COMPONENT BREAK DOWN // 20X,
3607      2 10MTOTAL MT. 8X, 30MHP 4X, 8MFUSELAGE 8X, 4MHPND 2X,
3608      3 10MHORIZONTAL 3X, 8MVERTICAL 11M 10 MACELLE 11M 08 MACELLE 1
3609      WRITE(6,30) (DWT(N),DWT(N+50), (111,N),1=1,8), N=1,40)
3610      30 FORMAT(5H MING 12X,8F11.1 /11M HORIZONTAL 8X,8F11.1 /5H VERTICAL
3611      1 8X,8F11.1 /5H BODY 12X,8F11.1 /10H MAIN GEAR 7X,8F11.1 /
3612      2 10H NOSE GEAR 7X,8F11.1 /14H SURF. CONTROL 3X,8F11.1 /
3613      3 10H ENG. SECTION 4X,8F11.1 /17H OTHER STRUCTURE 8F11.1 /
3614      4 0H ENGINES 8X,8F11.1 /17H ACCESSORY 6 BOX 8F11.1 /
3615      5 14H AIS STRUCTURE 3X,8F11.1 /17H AIS ACT AND REC. 8F11.1 /
3616      6 0H EXHAUST 8X,8F11.1 /17H COOL. AND DRMS. 8F11.1 /
3617      7 10H LUBE SYSTEM 8X,8F11.1 /12H FUEL SYSTEM 8X,8F11.1 /
3618      8 17H ENGINE CONTROLS 8F11.1 /
3619      9 14H STARTING SYS. 3X,8F11.1 / 0H A P U 11X,8F11.1/12H INSTRUMENTS
3620      A 8X,8F11.1/11H HYDRAULICS8X,8F11.1/11H ELECTRICAL 8X,8F11.1 /
3621      B 11H ELECTRONIC 8X,8F11.1 / 0H ARMAMENT 8X,8F11.1 /12H FURNISHINGS
3622      C 8X,8F11.1 /15H AIR CONDITION. 2X,8F11.1 / 7H PHOTO. 10X,8F11.1 /
3623      D 10H ALK. GEAR 7X,8F11.1 / 17H OTHER EQUIPMENT 8F11.1 / 5H CREW
3624      E 12X,8F11.1 / 11H TRAP. FUEL 8X,8F11.1 / 4H OIL 13X,8F11.1 /
3625      F 4H LME 13X,8F11.1 / 14H MISCELLANEOUS 3X,8F11.1 / 5H GUNS 12X,
3626      G 8F11.1 / 10H M. PYLONS 7X,8F11.1 /14H M. EXT. TANKS 3X,8F11.1 /
3627      H 10H F. PYLONS 7X,8F11.1 /14H F. EXT. TANKS 3X,8F11.1 /
3628      C
3629      C .....
3630      C
3631      C EXPENDABLE USEFUL LOAD
3632      WRITE(6,100) (ODMT(N+80),ODMT(N+90),DWT(N+80),DWT(N+90),
3633      * DWT(N+950),N=1,5 )
3634      100 FORMAT(1M,8X,21M** PRTOE - (P146) **/
3635      1      4M+ DATA MANAGEMENT -- EXPENDABLE USEFUL LOAD //3X,
3636      12M----- CAPACITY -----, 8X,4MTCOM,8X,4MTCOM,8X,4MDCM / 30X,
3637      2 8MHEIGHT,8X, 30MHP // 13X, 21MPASSENGERS ON PAYLOAD, 5F12.2 /
3638      3 13X, 12MHPND PAYLOAD,8X, 5F12.2 / 13X, 10HAMMUNITION, 11X,
3639      4 5F12.2 / 13X, 17MHPND FUEL TANK 1, 4X, 5F12.2 / 13X,
3640      5 17MHPND FUEL TANK 2, 4X, 5F12.2 )
3641      WRITE (6,110) ( N, ODMT(N+85),ODMT(N+95),DWT(N+85), DWT(N+95),
3642      * DWT(N+955), N=1,5 )
3643      110 FORMAT ( 13X, 10MFUSELAGE FUEL TANK, 12, X, 5F12.2 )
3644      C
3645      RETURN
3646      END
3647      C
3648      C .....
3649      C
3650      C SUBROUTINE QUIKIE
3651      C .....
3652      C
3653      C SUBROUTINE QUIKIE
3654      C
3655      C WRITTEN 26 JUNE 1972
3656      C TO DO FIRST PASS HEIGHT ESTIMATES AND C.O.
3657      COMMON TCOM(4320)
3658      COMMON /PRINT/ IP(80)
3659      DIMENSION O(700),OD(700),OV(2320),S(400),ND(200)
3660      DIMENSION EQU(200)
3661      DIMENSION OD(120),Z(130),ODMT(180),ODH(50),ODH(40),ODV(40),
3662      I ODB(80),DATS(40),DATD(70),DATR(20),DATN(70)
3663      DIMENSION DWH(50),DWH(30),DWH(30),DWH(440),DVO(100),DWH(150),
3664      I DWT(1000)
3665      DIMENSION OSP(10)
3666      DIMENSION XI(10)
3667      DIMENSION TOT(20),NBD(10),SFD(10),XBN(10),SFM(10)
3668      C
3669      EQUIVALENCE (O(1),TCOM(1)),(OD(1),TCOM(701)),(OV(1),TCOM(1401)),
3670      I (S(1),TCOM(3721)),(ND(1),TCOM(4121))
3671      C
3672      EQUIVALENCE (EQU(1),O(81))
3673      EQUIVALENCE (OD(1),OD(1)),(ODD(1),OD(21)),(ODMT(1),OD(81)),
3674      I (ODH(1),OD(251)),(ODH(1),OD(301)),(ODV(1),OD(341)),

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CARD NO      CONTENTS
****
3763      2 (DOB(1),DO(381)),(DATS(1),DO(461)),(DATD(1),DO(501)),
3764      3 (DATR(1),DO(571)),(DATN(1),DO(591))
3765      EQUIVALENCE (X1(1),DOB(8))
3766      EQUIVALENCE (DWA(1),DV(321)),(DWA(1),DV(371)),(DWA(1),DV(401)),
3767      1 (DVB(1),DV(431)),(DVB(1),DV(871)),(DWA(1),DV(871)),
3768      2 (DWT(1),DV(1121))
3769      EQUIVALENCE (DSP(1),DV(311))
3770      EQUIVALENCE (TOT(1),DVB(361)),(SFD(1),DVB(71)),
3771      1 (HED(1),DVB(81)),(SFC(1),DWA(71)),(HBN(1),DWA(111))
3772      C
3773      EQUIVALENCE (I,ND(181)),(J,ND(102))
3774      EQUIVALENCE (I,ND(187))
3775      EQUIVALENCE (ITP,ND(1111)),(IVO,ND(112)),(IOO,ND(114)),
3776      1 (NC,ND(115)),(NCO,ND(117)),(NCN,ND(118)),(ION,ND(112))
3777      C      CLEAR SCRATCH REGION
3778      DO 10 I=1,150
3779      S(I) = 0.241
3780      10 CONTINUE
3781      C
3782      C      TRANSFER INPUT DATA TO STORAGE REGION DV FILE
3783      DO 20 I=1,40
3784      DWT(I) = GDMT(I)
3785      DWT(I+50) = GDMT(I+40)
3786      20 CONTINUE
3787      DO 30 I=1,50
3788      DWT(I) = GDMT(I+40)*GDMT(I+90)
3789      DWT(I+50) = GDMT(I+50)
3790      C      TRANSFER USEFUL LOAD TO DV REGION FOR TOUGH AND LOGN
3791      DWT(I+800) = GDMT(I+40)*GDMT(I+80)
3792      DWT(I+810) = GDMT(I+40)*GDMT(I+100)
3793      30 CONTINUE
3794      C
3795      C      TEST FOR AIR INDUCTION SYSTEM HEIGHT
3796      IF (GDMT(12)) 50,50,86
3797      C      DO FIRST PASS ESTIMATE ON AIS
3798      50 DO TO (80,70,60,60,70,70),140
3799      C      DO RAPS
3800      60 S(1) = DATR(4)*DATR(8) + DATR(5)*DATR(9) + DATR(6)*DATR(10) +
3801      1 DATR(7)*DATR(11)
3802      S(52) = DATR(17) + (DATR(4) + DATR(5) + DATR(6) + DATR(7))/D(2)
3803      S(53) = D(31)*DSP(8)
3804      S(54) = D(32)*DSP(7)
3805      S(55) = AMAX(S(53),S(54))
3806      S(61) = S(51)/D(17)*EQU(71) + (S(55)/EQU(72))*EQU(73)*
3807      + DATS(5)*EQU(78)
3808      S(71) = S(52)
3809      60 TO 80
3810      C      SPIKES INITIAL ESTIMATE
3811      70 IF (IVO - S1) 72,74,76
3812      70 S(61) = EQU(29)*DATS(4)*DATS(5)/D(17)*EQU(78)
3813      80 TO 70
3814      74 S(61) = EQU(30)*DATS(4)*DATS(5)/D(17)*EQU(78)
3815      80 TO 70
3816      76 S(61) = EQU(31)*DATS(4)*DATS(5)/D(17)*EQU(78)
3817      70 S(71) = DATS(81)
3818      C      DUCTS INITIAL ESTIMATE
3819      80 J = 2
3820      IF (IOO) 85,85,81
3821      81 J = 3
3822      S(81) = SFD(1)/C(17)*EQU(74)*EQU(78)
3823      C      TEST FOR MAXIMUM DESIGN PRESSURE
3824      85 S(51) = DSP(8)*D(31)
3825      S(52) = DSP(8)*D(31)
3826      S(53) = DSP(8)*D(32)
3827      S(54) = AMAX(S(51),S(52),S(53))
3828      S(55) = EQU(78)*EQU(78)
3829      IF (EQU(78) - S(54)) 88,80,80
3830      88 S(55) = (EQU(78) + ((S(54) - EQU(78))/EQU(78))*EQU(77))*EQU(78)
3831      80 DO 82 I=J,NCO
3832      S(I+78) = SFD(I-1)/D(17)*S(55)
3833      82 CONTINUE

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01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
3034	J = NCD - 1		
3035	DO 04 I=1,J		
3036	S(41) = S(41) + S(1+00)		
3037	S(42) = S(42) + S(1+00)*NCD(1)		
3038	04 CONTINUE		
3039	S(62) = S(41)		
3040	S(72) = S(42)/S(41)		
3041	C		
3042	C DO FACELLES IF APPLICABLE		
3043	05 IF(BDM(0)) 100,100,105		
3044	100 IF(1TP) 150,150,102		
3045	102 J = 2		
3046	IF(10N) 110,110,104		
3047	104 J = 3		
3048	110 DO 114 I=J,NCH		
3049	S(1+00) = S(1+00)/D(17)*EQU(70)		
3050	114 CONTINUE		
3051	DO 116 I=J,NCH		
3052	S(43) = S(43) + S(1+00)		
3053	S(44) = S(44) + S(1+00)*NCH(1)		
3054	116 CONTINUE		
3055	S(63) = S(43)		
3056	S(73) = S(44)/S(43)		
3057	C TEST ON INBD PYLON		
3058	IF(DATS(22)) 150,150,120		
3059	120 S(04) = DATS(22)*DATS(23)/D(17)*EQU(80)		
3060	S(74) = DATS(12) + DATD(NCD+10) + DATS(23)/D(2)*		
3061	1 SIN(DATS(20)*D(18))		
3062	IF(DATS(24)) 150,150,122		
3063	C OUTBD PYLON		
3064	122 S(05) = DATS(24)*DATS(25)/D(17)*EQU(80)		
3065	S(75) = DATS(12) + DATD(NCD+10) + DATS(25)/D(2)*		
3066	1 SIN(DATS(20)*D(18))		
3067	C ENGINE MOUNTS		
3068	150 S(06) = BDM(10)*EQU(81)		
3069	S(76) = DATS(12) + DATD(NCD+10)		
3070	C SUM ENGINE SECTION		
3071	155 S(45) = S(63)*DATS(1) + S(04)*D(2) + S(05)*D(2) + S(06)		
3072	IF(DATS(1) - D(2)) 160,160,105		
3073	160 S(46) = S(63)*D(2)*(DATS(13) + S(73)) + S(04)*D(2)*		
3074	1 (DATS(13) + S(74)) + S(06)*D(2)*(DATS(13) + S(76))		
3075	IF(DATS(1)) 162,162,104		
3076	162 S(47) = S(61) + S(62)		
3077	S(48) = S(61)*(DATS(13) + S(71)) + S(62)*(DATS(13) + S(72))		
3078	GO TO 100		
3079	104 S(47) = S(61) + D(2)*S(62)		
3080	S(48) = S(61)*(DATS(13) + S(71)) + S(62)*D(2)*(DATS(13) + S(72))		
3081	GO TO 100		
3082	105 S(46) = S(63)*D(2)*(DATS(13) + DATS(16) + S(73)*D(2) +		
3083	1 S(04)*D(2)*(DATS(13) + S(74)) + S(05)*D(2)*(DATS(16) + S(75)) +		
3084	2 S(06)*(DATS(13) + DATS(16))/D(2) + S(76))		
3085	S(47) = S(61) + S(62)*DATS(1)		
3086	S(48) = S(61)*(DATS(13) + DATS(16))/D(2) + S(71) +		
3087	1 S(62)*DATS(1)*(DATS(13) + DATS(16))/D(2) + S(72))		
3088	100 IF(S(45)) 190,190,162		
3089	162 S(107) = S(45)		
3090	S(117) = S(46)/S(45)		
3091	190 IF(S(47)) 200,200,162		
3092	162 S(108) = S(47)		
3093	S(118) = S(48)/S(47)		
3094	C		
3095	C TEST ON MING		
3096	200 IF(BDM(1)) 201,201,200		
3097	201 S(20) = APMX(1000(1),1000(12),1000(14))		
3098	S(21) = (1000(3)*S(27)*D(31))**EQU(82)		
3099	S(22) = DBP(5)**EQU(83)		
3100	S(23) = GDM(1)**EQU(84)		
3101	S(24) = (GDM(2)/(COS(DWM(50)*D(18))**2))**EQU(85)		
3102	S(25) = (GDM(12)*D(18)*D(18)/COS(DWM(50)*D(18)))*EQU(86)		
3103	C TEST ON TAPER RATIO		
3104	IF(BDM(13)) 222,222,224		

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CARD NO	****	CONTENTS	****
3005	C	TAPER RATIO = 0.0 SET EQUAL TO 0.001	
3006		202 S(29) = D(11)/D(14)	
3007		GO TO 206	
3008		204 S(29) = GDM(3)	
3009		205 S(26) = S(29)**EQU(87)	
3010		S(27) = D(1)	
3011		IF(GDM(3)) 206,206,204	
3012	C	LANDING GEAR ON WING	
3013		204 S(27) = EQU(88)	
3014		205 S(26) = D(1)	
3015		IF(GDM(2)) 210,210,208	
3016	C	VARIABLE SHEEP WING	
3017		208 S(26) = EQU(89) - EQU(90)*GDM(31)/DWM(45)	
3018		210 S(101) = S(121)*S(22)*S(23)*S(24)*S(26)*S(25)*S(27)*S(28)/	
3019		I EQU(91)*EQU(92)	
3020		S(111) = DWM(43) + (EQU(93) - D(23))*DWM(44)	
3021	C		
3022	C	HORIZONTAL TAIL	
3023		300 IF(GDM(2)) 302,302,400	
3024		302 S(30) = AMAX(1000*(11),GDM(12),GDM(14))	
3025		S(31) = (GDM(3)*S(30)*D(31))*EQU(94)	
3026		S(32) = DSP(5)*EQU(95)	
3027		S(33) = DWM(8)*EQU(96)	
3028		S(34) = (DWM(7)/(COS(DWM(23)*D(16))**2))*EQU(97)	
3029		S(35) = (GDM(12)*D(10)*D(10)/COS(DWM(23)*D(16)))*EQU(98)	
3030	C	TEST ON TAPER RATIO	
3031		IF(DWM(6)) 304,304,306	
3032	C	TAPER RATIO = 0.0 SET EQUAL TO 0.001	
3033		304 S(37) = D(11)/D(14)	
3034		GO TO 308	
3035		306 S(37) = DWM(6)	
3036		308 S(36) = S(37)*EQU(99)	
3037		S(102) = (S(31)*S(32)*S(33)*S(34)/EQU(100)/S(35)*S(36))*EQU(101)	
3038		S(112) = DWM(24) + (EQU(102) - D(23))*DWM(25)	
3039	C		
3040	C	VERTICAL TAIL	
3041		400 IF(GDM(3)) 402,402,450	
3042		402 S(30) = AMAX(1000*(11),GDM(12),GDM(14))	
3043		S(31) = (GDM(3)*S(30)*D(31))*EQU(103)	
3044		S(32) = DSP(5)*EQU(104)	
3045		S(33) = GDM(11)*EQU(105)	
3046		S(34) = (GDM(2)/(COS(DVM(22)*D(16))**2))*EQU(106)	
3047		S(35) = (GDM(12)*D(10)*D(10)/COS(DVM(22)*D(16)))*EQU(107)	
3048	C	TEST ON TAPER RATIO	
3049		IF(GDM(3)) 404,404,406	
3050	C	TAPER RATIO = 0.0 SET EQUAL TO 0.001	
3051		404 S(37) = D(11)/D(14)	
3052		GO TO 408	
3053		406 S(37) = GDM(3)	
3054		408 S(36) = S(37)*EQU(108)	
3055		S(103) = (S(31)*S(32)*S(33)*S(34)*S(35)/EQU(109))*EQU(110)*	
3056		I DVM(23)	
3057		S(113) = DVM(24) + (EQU(111) - D(23))*DVM(25)	
3058	C	LANDING GEAR	
3059		450 IF(GDM(5)) 460,460,452	
3060		452 IF(GDM(6)) 460,460,500	
3061		460 S(30) = D(2)	
3062		S(31) = GDM(20)**2/D(2)/D(26)/GDM(21)*D(12)	
3063		S(32) = S(30)*GDM(1)	
3064		S(33) = S(31)*GDM(5)	
3065		IF(S(32) - S(33)) 462,470,470	
3066	C	LANDING CRITICAL	
3067		462 S(34) = S(31)*EQU(112)	
3068		S(36) = GDM(5)*EQU(113)	
3069		GO TO 450	
3070		470 S(34) = S(30)*EQU(112)	
3071		S(36) = GDM(1)*EQU(113)	
3072		480 S(38) = (GDM(23)/D(12))*EQU(114)	
3073		IF(GDM(5)) 462,462,460	
3074		462 S(105) = EQU(115)*S(34)*S(35)*S(36)**GDM(14) - GDM(27)/	
3075		I (GDM(26) - GDM(27))	

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CARD NO	****	CONTENTS	****
3076		S(115) = 000(25)	
3077		400 IF(000(15)) 402,402,500	
3078		402 S(100) = (000(115)*S(34)*S(35)*S(36)**(000(26) - 000(41))	
3079		1 (000(26) - 000(27))	
3080		S(110) = 000(27)	
3081	C		
3082	C	BODY GROUP	
3083		000 IF(000(14)) 502,502,600	
3084		502 S(30) = MAX(000(11),000(12),000(14))	
3085		S(31) = (TOT(11)/0(17))*EQU(110)	
3086		S(32) = (S(30)*0(31)*000(31))*EQU(110)	
3087		S(33) = (ABS(DW(124) - DW(143))/0(12))*EQU(120)	
3088		S(34) = ((X(110) - X(111))/(TOT(110) + TOT(120))*0(21))*EQU(121)	
3089		S(35) = 000(5)*EQU(122)	
3090		S(104) = S(31)*S(32)/S(33)/S(34)*S(35)*EQU(123)*EQU(124)	
3091		IF(DATS(1)) 510,510,520	
3092		510 S(114) = X(11) + (X(110) - X(111))*EQU(125)	
3093		GO TO 600	
3094		520 S(114) = X(11) + (X(110) - X(111))*EQU(126)	
3095	C		
3096	C	TEST ON HEIGHTS AND C.G. AT FLIGHT DESIGN CROSS HEIGHT	
3097		000 DO 010 I=1,40	
3098		S(1) = S(1) + DW(11)	
3099		S(2) = S(2) + DW(11)*DW(11)*50	
4000		010 CONTINUE	
4001		DO 012 I=1,50	
4002		S(1) = S(1) + DW(11)	
4003		S(2) = S(2) + DW(11)*DW(11)*50	
4004		012 CONTINUE	
4005		DO 014 I=1,0	
4006		S(3) = S(3) + S(1)*100	
4007		014 CONTINUE	
4008		IF(S(3) .NE. 0.0) GO TO 0140	
4009		WRITE (0,0145)	
4010		0145 FORMAT(/// 0240***** ALL DETAIL HEIGHTS AND C.G.'S WERE INPUT	
4011		(***** ///)	
4012		GO TO 002	
4013		0140 CONTINUE	
4014		S(11) = (000(3) - S(11))/S(3)	
4015		DO 015 I=1,0	
4016		S(1+130) = S(1+100)*S(11)	
4017		S(4) = S(4) + S(1+130)	
4018		S(5) = S(5) + S(1+130)*S(1+110)	
4019		015 CONTINUE	
4020		S(12) = 000(3)*000(4)	
4021	C	ASSUME CG ERROR	
4022	C	TO MATCH REQUIRED CG ERROR, SHIFT CG OF LUNGS	
4023	C	SETUP 10 PERCENT SHIFT	
4024	C	ACCORDING TO CHARACTERISTIC LENGTH	
4025		S(121) = DW(141)	
4026		S(122) = DW(125)	
4027		S(123) = DW(125)	
4028		S(124) = X(110) - X(11)	
4029		S(125) = 000(23)	
4030		S(126) = 000(24)	
4031		S(127) = DATS(10)	
4032		S(128) = (DATD(100) - DATD(11))	
4033		DO 020 I=1,0	
4034		S(6) = S(6) + S(1+130)*S(1+120)	
4035		020 CONTINUE	
4036		S(13) = S(12) - S(2) - S(5)	
4037		S(14) = S(13)/S(6)	
4038		DO 022 I=1,0	
4039		IF(S(1+130)) 022,022,021	
4040		021 S(1+140) = S(1+110) + S(1+120)*S(14)	
4041		022 CONTINUE	
4042	C	CORRECT MACELLE PIECES	
4043		DO 024 I=1,0	
4044		S(1+00) = S(1+00)*S(11)	
4045		024 CONTINUE	
4046		S(7) = S(7) + S(128)*S(14)	

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CARD NO      ****      CONTENTS      ****

4047      S(70) = S(70) + S(120)*S(14)
4048      S(73) = S(73) + S(127)*S(14)
4049      S(74) = S(74) + S(127)*S(14)
4050      S(75) = S(75) + S(127)*S(14)
4051      S(76) = S(76) + S(127)*S(14)
4052      DO 825 I=1,20
4053      S(1+80) = S(1+80)*S(11)
4054      825 CONTINUE
4055      C      TRANSFER DATA TO STORAGE
4056      IF(DWAT(1)) 832,832,834
4057      832 DWAT(1) = S(131)
4058      DWAT(51) = S(141)
4059      834 IF(DWAT(2)) 836,836,838
4060      836 DWAT(2) = S(132)
4061      DWAT(52) = S(142)
4062      838 IF(DWAT(3)) 840,840,842
4063      840 DWAT(3) = S(133)
4064      DWAT(53) = S(143)
4065      842 IF(DWAT(4)) 844,844,846
4066      844 DWAT(4) = S(134)
4067      DWAT(54) = S(144)
4068      846 IF(DWAT(5)) 848,848,850
4069      848 DWAT(5) = S(135)
4070      DWAT(55) = S(145)
4071      850 IF(DWAT(6)) 852,852,854
4072      852 DWAT(6) = S(136)
4073      DWAT(56) = S(146)
4074      854 IF(DWAT(7)) 856,856,858
4075      856 DWAT(7) = S(137)
4076      DWAT(57) = S(147)
4077      858 IF(DWAT(12)) 860,860,862
4078      860 DWAT(12) = S(138)
4079      DWAT(62) = S(148)
4080      WRITE(6,1620)
4081      1620 FORMAT(1H1,20X,5HSTRUCTURE HEIGHT DATA FROM QUIKIE IN DATA MANAGE
4082      *MENT//32X,10HINITIAL ESTIMATE,NX,14HCHARACTERISTIC,8X,
4083      *10HCORRECTED ESTIMATE/30X,8HHEIGHT,5X,8HHORIZ ARM,8X,8HLENGTH,
4084      * 13X,8HHEIGHT,5X,8HHORIZ ARM)
4085      WRITE(6,1621) (S(1+100),S(1+110),S(1+120),S(1+130),S(1+140),I=1,8)
4086      1621 FORMAT(8X,4HIND,11X,2F12.1,4X,F12.1,4X,2F12.1/
4087      1 8X,15HHORIZONTAL TAIL,2F12.1,4X,F12.1,4X,2F12.1/
4088      2 8X,15HVERTICAL TAIL,2X,2F12.1,4X,F12.1,4X,2F12.1/
4089      3 8X,8HFUSELAGE,7X,2F12.1,4X,F12.1,4X,2F12.1/
4090      4 8X,8HMAIN BEAR,8X,2F12.1,4X,F12.1,4X,2F12.1/
4091      5 8X,8HROCK BEAR,8X,2F12.1,4X,F12.1,4X,2F12.1/
4092      6 8X,14HENGINE SECTION,1X,2F12.1,4X,F12.1,4X,2F12.1/
4093      7 8X,15HMR IND. SYSTEM,2F12.1,4X,F12.1,4X,2F12.1)
4094      C
4095      882 CONTINUE
4096      C      TEST FOR 0, 2 OR 4 NACELLES
4097      C      IF 4 NACELLES, PYLONS INBOARD MAY BE DIFFERENT FROM
4098      C      OUTBOARD PYLONS
4099      I1 = 1
4100      S(51) = 0(1)
4101      S(52) = 0(24)
4102      IF(D(2) - DATS(1)) 702,770,770
4103      702 I1 = 2
4104      S(51) = 0(19)
4105      S(52) = (DATS(13) - DATS(18))/D(2)
4106      770 S(50) = (DWAT(8) - D(2)*S(54) + S(55))*S(51)
4107      S(56) = (DWAT(8)*DWAT(50) - D(2)*S(54)*(DATS(13) + S(74)) -
4108      1 D(2)*S(50)*(DATS(18) + S(75))*S(51)/S(50)
4109      DWAT(251) = S(50) + D(2)*S(54)
4110      DWAT(261) = (S(50)*S(50) + S(52)*S(52) + D(2)*S(54))*
4111      1 (DATS(13) + S(74))/DWAT(251)
4112      IF(I - I1) 870,800,800
4113      870 DWAT(201) = S(50) + D(2)*S(52)
4114      DWAT(221) = (S(50)*S(50) - S(52)*S(52) + D(2)*S(50))*
4115      1 (DATS(18) + S(75))/DWAT(201)
4116      800 CONTINUE
4117      IF(1P144)8001,8001,8002

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CARD NO	CONTENTS		
4110	9001 CONTINUE		
4110	C BREAKPOINT OUTPUT		
4120	WRITE(6,1000)		
4121	1000 FORMAT(1H,3X,11H S-REGION,4X,21H** QUICKIE - (P(44) **)		
4122	DO 1004 N=1,100,5		
4123	K = N + 4		
4124	WRITE(6,1002) N,(5(J),J=N,K,1)		
4125	1002 FORMAT(4X,14,9F10.4)		
4126	1004 CONTINUE		
4127	9002 CONTINUE		
4128	RETURN		
4129	END		
4130	C		
4131	C		
4132	C SUBROUTINE SPQALT		
4133	C		
4134	C		
4135	C SUBROUTINE SPQALT	00020010	
4136	C WRITTEN 20 MARCH 1972	00020020	
4137	C TO DETERMINE ATMOSPHERIC PROPERTIES FOR 9 POINTS ON V-A DIAGRAM	00020030	
4138	C	00020040	
4139	COMMON TCOM(4320)		
4140	COMMON /IPRINT/ IP(80)		
4141	COMMON /MISC/ NMISC(100)		
4142	C	00020050	
4143	DIMENSION D(700),OD(700),DV(2320),S(400),ND(200)		
4144	DIMENSION OD(120),OOD(30)		
4145	DIMENSION DATH(40)	00020060	
4146	DIMENSION EQU(200)	00020070	
4147	DIMENSION TITLE(16)		
4148	DIMENSION ALT(10),TEM(10),PO(10),G(10),CS(10),RND(10)	00020110	
4149	DIMENSION WH(10),VL(10),GH(10),QL(10),EPH(10),EPL(10),	00020120	
4150	IRATH(10),RATL(10),TEPH(10),TEPL(10),PTH(10),PTL(10),PSH(10),	00020130	
4151	SPSL(10)	00020140	
4152	DIMENSION DVB(440),TOT(20)		
4153	C	00020160	
4154	EQUIVALENCE (D(1),TCOM(1)),(OD(1),TCOM(170)),(DV(1),TCOM(140)),		
4155	1 (S(1),TCOM(372)),(ND(1),TCOM(412))		
4156	EQUIVALENCE (D(8),EQU(1))	00020190	
4157	EQUIVALENCE (OD(1),OD(1)),(OOD(1),OD(2))		
4158	EQUIVALENCE (DATH(1),OD(5))		
4159	EQUIVALENCE (DATH(31),DVL0),(DATH(32),RATG)	00020210	
4160	EQUIVALENCE (TITLE(1),NMISC(85))		
4161	EQUIVALENCE (S(1),TEMP(1)),(S(2),PRESH),(S(4),ALT)		
4162	EQUIVALENCE (ALT(1),DV(1)),(TEM(1),DV(1)),(PO(1),DV(2)),		
4163	1 (G(1),DV(3)),(CS(1),DV(4)),(RND(1),DV(5))		
4164	EQUIVALENCE (WH(1),DV(6)),(VL(1),DV(7)),(GH(1),DV(8)),		
4165	1 (QL(1),DV(9)),(EPH(1),DV(10)),(EPL(1),DV(11)),		
4166	2 (IRATH(1),DV(12)),(IRATL(1),DV(13)),(TEPH(1),DV(14)),		
4167	3 (TEPL(1),DV(15)),(PTH(1),DV(16)),(PTL(1),DV(17)),		
4168	4 (PSH(1),DV(18)),(SPSL(1),DV(19))		
4169	EQUIVALENCE (DVB(1),DV(43)),(TOT(1),DVB(135))		
4170	EQUIVALENCE (ND(101),1),(ND(102),J)	00020330	
4171	C	00020340	
4172	DO 20 I=1,5	00020350	
4173	2 IF (DATH(I+10) = 0,0,10	00020360	
4174	4 DATH(I+10) = D(1) - DATH(I+10)	00020370	
4175	DO TO 10	00020380	
4176	6 DATH(I+10) = DVL0	00020390	
4177	IF (DVL0 = 2,10,10	00020400	
4178	10 J = 2*I - 1	00020410	
4179	ALT(J) = DATH(I+5)	00020420	
4180	WH(J) = DATH(I)	00020430	
4181	IF (DATH(I+10) = 0(1)) 12,16,10	00020440	
4182	12 VL(J) = WH(J) + DATH(I+10)	00020450	
4183	DO TO 20	00020460	
4184	16 VL(J) = WH(J)*DATH(I+10)	00020470	
4185	20 CONTINUE	00020480	
4186	C INTERPOLATE FOR INTERMEDIATE ALTITUDES	00020490	
4187	DO 40 I=1,4	00020500	
4188	J = I+2	00020510	

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
4109		ALT(J) = (ALT(J-1) + ALT(J+1))/D(2)	00020520
4100		40 CONTINUE	00020530
4101	C	DEVELOP ATMOSPHERIC TABLES - 0 ALTITUDES	00020540
4102		DO 100 I=1,5	00020550
4103		ALT(I) = ALT(1)	
4104		CALL TEMPRE	00020560
4105		TEMP(I) = TEMP(1)	00020570
4106		PO(I) = PRES(1)	00020580
4107		O(I) = O(20) - ALT(I)*EQU(21)	00020590
4108		RHO(I) = PO(I)/TEMP(I)/EQU(22)	00020600
4109		CS(I) = (EQU(23)*O(I)*EQU(22)*TEMP(I))**.5	00020610
4200		100 CONTINUE	00020620
4201	C	DETERMINE DYNAMIC PRESSURE AT INITIAL POINTS	00020630
4202		DO 120 J=1,5	00020640
4203		J = 2*J - 1	00020650
4204		QH(J) = RHO(J)/O(J)/D(2)*WH(J)*CS(J)**2	00020660
4205		QL(J) = RHO(J)/O(J)/D(2)*VL(J)*CS(J)**2	00020670
4206		120 CONTINUE	00020680
4207	C	DETERMINE SPEED AND DYNAMIC PRESSURE AT INTERMEDIATE POINTS	00020690
4208	C	STRAIGHT LINE INTERPOLATION ON DYNAMIC PRESSURE	00020700
4209		DO 140 I=1,4	00020710
4210		J = 1+2	00020720
4211		IF(WH(J-1) - WH(J+1)) 132,130,132	00020730
4212		130 WH(J) = WH(J-1)	00020740
4213		QH(J) = RHO(J)/O(J)/D(2)*WH(J)*CS(J)**2	00020750
4214		GO TO 134	00020760
4215		132 QH(J) = (QH(J-1) + QH(J+1))/D(2)	00020770
4216		WH(J) = (D(2)*QH(J)*O(J)/RHO(J))**.5/CS(J)	00020780
4217		134 IF(VL(J-1) - VL(J+1)) 136,136,136	00020790
4218		136 VL(J) = VL(J-1)	00020800
4219		QL(J) = RHO(J)/O(J)/D(2)*VL(J)*CS(J)**2	00020810
4220		GO TO 140	00020820
4221		130 QL(J) = (QL(J-1) + QL(J+1))/D(2)	00020830
4222		VL(J) = (D(2)*QL(J)*O(J)/RHO(J))**.5/CS(J)	00020840
4223		140 CONTINUE	00020850
4224	C	DETERMINE PRESSURE RECOVERY AND FLOW RATE AT ENGINE FACE	00020860
4225	C	0 POINTS	00020870
4226		DO 400 I=1,5	00020880
4227		J = 2*J - 1	00020890
4228		IF(DATH(I+15)) 162,162,160	00020900
4229		162 IF(RATG) 184,184,200	00020910
4230		184 IF(WH(J) - D(1)) 166,166,160	00020920
4231		166 RATH(J) = D(1)	00020930
4232		GO TO 170	00020940
4233		160 RATH(J) = D(1) - EQU(24)*(WH(J) - D(1))*EQU(25)	00020950
4234		170 IF(VL(J) - D(1)) 172,172,174	00020960
4235		172 RATL(J) = D(1)	00020970
4236		GO TO 176	00020980
4237		174 RATL(J) = D(1) - EQU(24)*(VL(J) - D(1))*EQU(25)	00020990
4238		176 IF(J - 0) 178,300,300	00021000
4239		178 IF(WH(J+1) - D(1)) 180,180,182	00021010
4240		180 RATH(J+1) = D(1)	00021020
4241		GO TO 184	00021030
4242		182 RATH(J+1) = D(1) - EQU(24)*(WH(J+1) - D(1))*EQU(25)	00021040
4243		184 IF(VL(J+1) - D(1)) 186,186,188	00021050
4244		186 RATL(J+1) = D(1)	00021060
4245		GO TO 300	00021070
4246		180 RATL(J+1) = D(1) - EQU(24)*(VL(J+1) - D(1))*EQU(25)	00021080
4247		GO TO 300	00021090
4248		180 RATH(J) = DATH(I+19)	00021100
4249		RATL(J) = DATH(I+20)	00021110
4250		191 IF(I - J) 192,300,300	00021120
4251		192 RATH(J-1) = (RATH(J-2) + RATH(J))/D(2)	00021130
4252		RATL(J-1) = (RATL(J-2) + RATL(J))/D(2)	00021140
4253		GO TO 300	00021150
4254		200 RATH(J) = RATH	00021160
4255		RATL(J) = RATH	00021170
4256		GO TO 191	00021180
4257	C		00021190
4258		300 IF(DATH(I+25)) 310,310,350	00021200
4259		310 EXH(J) = EQU(26)	00021210

01/08/74	INPUT LISTING	AUTOFLIGHT CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	CONTENTS		
0002	EQUIVALENCE (EQU(1),D(81))		
0003	EQUIVALENCE (1,ND(101)),(J,ND(102)),(11,ND(107))		
0004	C LOCATE OPERATIONAL WEIGHT EMPTY ITEMS ACCORDING TO STRUCTURE		
0005	710 DWT(101) = DWT(1)		
0006	DWT(20) = DWT(51)		
0007	DWT(21) = DWT(2)		
0008	DWT(22) = DWT(52)		
0009	DWT(24) = DWT(3)		
0010	DWT(25) = DWT(53)		
0011	DWT(101) = DWT(4)		
0012	DWT(14) = DWT(94)		
0013	IF(001(3)) 700,720,725		
0014	700 DWT(102) = DWT(5)		
0015	DWT(142) = DWT(95)		
0016	00 TO 730		
0017	725 DWT(102) = DWT(5)		
0018	DWT(202) = DWT(55)		
0019	730 DWT(103) = DWT(6)		
0020	DWT(143) = DWT(56)		
0021	C DISTRIBUTE SURFACE CONTROLS BETWEEN COMPONENTS		
0022	C FIXED WING		
0023	IF(DWT(7)) 752,752,731		
0024	731 S(51) = EQU(133)		
0025	S(52) = EQU(134)		
0026	S(53) = EQU(135)		
0027	S(54) = EQU(131)		
0028	S(55) = EQU(132)		
0029	IF(001(2)) 732,732,734		
0030	732 S(51) = EQU(120)		
0031	734 IF(001(4) - D(1)) 730,735,730		
0032	730 S(52) = EQU(120)		
0033	730 IF(001(5) - D(1)) 742,740,742		
0034	740 S(53) = EQU(130)		
0035	742 S(56) = D(1)/(S(51) + S(52) + S(53) + S(54) + S(55))		
0036	00 750 I=1,5		
0037	S(1+50) = S(1+50)*S(56)		
0038	750 CONTINUE		
0039	DWT(103) = DWT(7)*S(51)		
0040	DWT(203) = DWT(51)		
0041	DWT(222) = DWT(7)*S(52)		
0042	DWT(232) = DWT(52)		
0043	DWT(242) = DWT(7)*S(53)		
0044	DWT(252) = DWT(53)		
0045	DWT(104) = DWT(7)*S(54)		
0046	DWT(144) = DWT(81) - D(10)		
0047	DWT(105) = DWT(7)*S(55)		
0048	S(57) = DWT(7)*DWT(57)		
0049	S(58) = DWT(103)*DWT(203) + DWT(222)*DWT(232) +		
0050	1 DWT(242)*DWT(252) + DWT(104)*DWT(144)		
0051	DWT(145) = (S(57) - S(58))/DWT(105)		
0052	C MACELLE AND CONTENTS		
0053	752 II = 1		
0054	S(51) = D(1)		
0055	S(52) = D(24)		
0056	IF(D(2) - DATS(1)) 760,770,770		
0057	760 II = 2		
0058	S(51) = D(10)		
0059	S(52) = (DATS(13) - DATS(10))/D(2)		
0060	770 DO 780 I=1,7		
0061	DWT(1+201) = DWT(1+0)*S(51)		
0062	DWT(1+201) = DWT(1+50) + S(52)		
0063	780 CONTINUE		
0064	DWT(200) = DWT(10)*S(51)		
0065	DWT(200) = DWT(60) + S(52)		
0066	IF(001(6)) 762,762,764		
0067	760 = DWT(20)*S(51)		
0068	760 = DWT(70) + S(52)		
0069	760		
0070	1100 = DWT(20)		
0071	1140 = DWT(70)		
0072	00 . DWT(100) = DWT(0)		

01/05/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
4473	DWNT(146) = DWNT(88)		
4474	C DISTRIBUTE FUEL SYSTEM ACCORDING TO FUEL DISTRIBUTION		
4475	S(53) = D(24)		
4476	GO 002 1-1.7		
4477	S(53) = S(53) + DWNT(1463)		
4478	002 CONTINUE		
4479	S(56) = DWNT(84) + DWNT(85)		
4480	S(57) = DWNT(84)*DWNT(84) + DWNT(85)*DWNT(85)		
4481	DWNT(1187) = DWNT(17)/S(53)*(S(53) - S(56))		
4482	DWNT(1121) = DWNT(32)/S(53)*(S(53) - S(56))		
4483	DWNT(1184) = DWNT(17)/S(53)*S(56)		
4484	DWNT(1186) = DWNT(32)/S(53)*S(56)		
4485	IF(DWNT(1187)) 010,010,012		
4486	010 DWNT(204) = DWNT(87)		
4487	GO TO 020		
4488	012 IF(DWNT(1184)) 014,014,016		
4489	014 DWNT(147) = DWNT(87)		
4490	GO TO 020		
4491	016 DWNT(204) = S(57)/S(56)		
4492	DWNT(147) = (DWNT(17)*DWNT(87) - DWNT(1184)*DWNT(204))/DWNT(1187)		
4493	020 IF(DWNT(121)) 022,022,024		
4494	022 DWNT(206) = DWNT(82)		
4495	GO TO 050		
4496	024 IF(DWNT(1186)) 026,026,028		
4497	026 DWNT(161) = DWNT(82)		
4498	GO TO 050		
4499	028 DWNT(206) = S(57)/S(56)		
4500	DWNT(161) = (DWNT(32)*DWNT(82) - DWNT(1186)*DWNT(206))/DWNT(1121)		
4501	050 DWNT(108) = DWNT(18)		
4502	DWNT(148) = DWNT(88)		
4503	C DISTRIBUTE INSTRUMENTS		
4504	DWNT(1185) = DWNT(21)*EQU(137)*S(56)/S(53)		
4505	IF(DWNT(1185)) 050,050,052		
4506	052 DWNT(205) = S(57)/S(56)		
4507	050 DWNT(271) = DWNT(21)*EQU(137)*S(51)		
4508	DWNT(281) = DWNT(60) + S(52)		
4509	DWNT(118) = DWNT(21) - DWNT(185) - DWNT(21)*EQU(137)		
4510	IF(DWNT(118)) 062,062,064		
4511	064 DWNT(150) = (DWNT(21)*DWNT(71) - DWNT(1185)*DWNT(205) -		
4512	1 DWNT(21)*EQU(137)*DWNT(80))/DWNT(118)		
4513	C HYDRAULICS		
4514	062 IF(DWNT(22)) 064,064,066		
4515	066 DWNT(272) = DWNT(22)*EQU(139)*S(51)		
4516	DWNT(282) = DWNT(60) - DATS(12) - DATS(11)/D(2) + S(52)		
4517	DWNT(111) = DWNT(22)*(D(1) - EQU(139))		
4518	DWNT(151) = (DWNT(22)*DWNT(72) - DWNT(22)*EQU(139)*DWNT(282) -		
4519	1 S(52))/DWNT(111)		
4520	C ELECTRICAL		
4521	064 IF(DWNT(23)) 066,066,068		
4522	068 DWNT(273) = DWNT(23)*EQU(140)*S(51)		
4523	DWNT(283) = DWNT(60) - DATS(12) - DATS(11)/D(2) + S(52)		
4524	DWNT(112) = DWNT(23)*(D(1) - EQU(140))		
4525	DWNT(152) = (DWNT(23)*DWNT(73) - DWNT(23)*EQU(140)*DWNT(283) -		
4526	1 S(52))/DWNT(112)		
4527	C ELECTRONICS, APPARATUS, AND FURNISHINGS		
4528	066 DWNT(113) = DWNT(24)		
4529	DWNT(153) = DWNT(74)		
4530	DWNT(114) = DWNT(25)		
4531	DWNT(154) = DWNT(75)		
4532	DWNT(115) = DWNT(26)		
4533	DWNT(155) = DWNT(76)		
4534	C AIR CONDITIONING		
4535	IF(DWNT(27)) 068,068,067		
4536	067 DWNT(274) = DWNT(27)*EQU(141)*S(51)		
4537	DWNT(284) = DWNT(60) + S(52)		
4538	DWNT(116) = DWNT(27)*(D(1) - EQU(141))		
4539	DWNT(156) = (DWNT(27)*DWNT(77) - DWNT(27)*EQU(141)*DWNT(284))/		
4540	1 DWNT(116)		
4541	C PHOTOGRAPHIC, AUXILIARY GEAR, AND OTHERS, AND CREW		
4542	068 DWNT(117) = DWNT(28)		
4543	DWNT(157) = DWNT(78)		

01/00/74	INPUT LISTING	AUTOFLW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
4015		$S(7) = D(2)/D(3)*(S(11) + S(12) - S(11)*S(12)/(S(11) + S(12)))$	
4016		$S(14) = ATANH(S(3))/D(16)$	
4017		$S(15) = ATANH(S(4))/D(16)$	
4018		$S(16) = ATANH(S(5))/D(16)$	
4019		$S(17) = ATANH(S(6))/D(16)$	
4020		$S(18) = ODM(8)$	
4021		IF(ODM(8)) 10,10,20	
4022	C	COMPUTE LEADING EDGE LOCATION FROM MAC LOCATION	
4023		10 IF(S(11) - S(12)) 12,12,14	
4024		12 $S(18) = ODM(8) - S(11)/D(4)$	
4025		GO TO 20	
4026		14 $S(18) = ODM(8) - S(7)/D(4) - (S(11) - S(7))/(S(11) - S(12))$	
4027		1 $S(13)/D(2)*S(3)$	
4028		20 $S(18) = ODM(8)$	
4029		DMH(2) = ATANH(S(6))/D(16)	
4030		IF(S(11) - S(12)) 22,22,24	
4031		22 DMH(3) = $S(18) + S(11)/D(4)$	
4032		GO TO 26	
4033		24 DMH(3) = $S(18) + S(7)/D(4) + (S(11) - S(7))/(S(11) - S(12))$	
4034		1 $S(13)/D(2)*S(3)$	
4035		26 DMH(4) = S(7)	
4036		DMH(5) = $S(13)/D(2)$	
4037		DMH(6) = ATANH(S(3))/D(16)	
4038		DMH(7) = S(18)	
4039		DMH(8) = S(11)	
4040		DMH(9) = S(12)	
4041		$S(35) = S(1) + S(2)*(ODM(5) - D(23))$	
4042		DMH(50) = ATANH(S(35))/D(16)	
4043	C	TEST FOR INPUT CUTS	
4044		IF(ODM(10)) 35,35,40	
4045	C	COMPUTE Y FOR 11 CUTS	
4046		35 $S(8) = (S(13)/D(2) - ODM(7))/D(10)$	
4047		$S(20) = ODM(7)$	
4048		$S(38) = S(20) + EQU(66)*S(8)*D(10)$	
4049		DO 35 I=1,8	
4050		$S(1+20) = S(1+10) + S(8)$	
4051		36 CONTINUE	
4052		GO TO 50	
4053		40 DO 40 I=1,11	
4054		$S(1+10) = ODM(1+10)*COS(S(16)*D(16))$	
4055		IF(ODM(17)) 42,42,48	
4056		42 $S(1+10) = ODM(1+10)$	
4057		IF(ODM(1+10) - D(1)) 44,44,48	
4058		44 $S(1+10) = ODM(7) + (S(13)/D(2) - ODM(7))*ODM(1+10)$	
4059		48 CONTINUE	
4060	C		
4061	C	TEST FOR INPUT ERROR LAST CUT OUTBOARD OF TIP	
4062		50 IF(S(30) .GT. $S(13)/D(2)$) $S(30) = S(13)/D(2)$	
4063	C		
4064	C	TRANSFER REFERENCE WING CUTS IN S(20-30) TO DV(1001-1001)	
4065		DO 52 I=1,11	
4066		52 DMH(1+800) = $S(1+10)$	
4067	C		
4068	C	TEST FOR VARIABLE SHEEP WING	
4069		IF(OD(12))100,100,200	
4070	C	FIXED WING - TRANSFER DATA TO DV REGION	
4071		100 DMH(1) = ODM(7)	
4072		DMH(2) = S(14)	
4073		DMH(3) = S(16)	
4074		DMH(4) = S(18)	
4075		DMH(5) = S(11)	
4076		DMH(6) = ODM(3)	
4077		DMH(7) = ODM(2)	
4078		DMH(8) = ODM(1)	
4079		DMH(9) = $S(13)/D(12)$	
4080		DO 110 I=1,11	
4081		DMH(1+9) = $S(1+10)$	
4082		110 CONTINUE	
4083		DMH(21) = S(18)	
4084	C	USE INPUT OR CALCULATED CUT NO 2 FOR FATIGUE	
4085		DMH(1304) = DMH(11)	

01/00/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
4686		DWMT(395) = DWMT(4) + DWMT(11)*TAN(DWMT(2)*0.118) + DWMT(21)*DWMT(5)*	
4687		1 (D(1) - (D(1) - DWMT(8))*DWMT(11)/S(13)*0.2)	
4688		DWMT(396) = DWMT(394)	
4689		DWMT(397) = DWMT(395)	
4690		GO TO 300	
4691	C		
4692	C	11=1 IS AFT MIND POSITION 11=2 IS FND POSITION	
4693	C		
4694		200 11 = 1	
4695		DWMT(1) = QDM(7)	
4696	C		
4697		202 J = 20*11 - 19	
4698	C		
4699		DANGLE = 70M(11+32) - QDM(41) / 57.2958	
4700		CDA = COS(DANGLE)	
4701		SDA = SIN(DANGLE)	
4702	C		
4703		SSPAN = S(13) / 2.0	
4704	C		
4705		X(1) = S(18)	
4706		X(2) = S(18) + S(11)	
4707		X(3) = X(1) + SSPAN * TAN(S(14)/57.2958)	
4708		X(4) = X(2) + SSPAN * TAN(S(15)/57.2958)	
4709	C		
4710		Y(1) = 0.0	
4711		Y(2) = 0.0	
4712		Y(3) = SSPAN	
4713		Y(4) = SSPAN	
4714	C		
4715		VAR = X(1) + QDM(18) + S(11)	
4716		VAR1 = TAN(S(16)/57.2958)	
4717	C		
4718		DO 3000 N=5,15	
4719		X(N) = VAR + VAR1 * SIN(N)	
4720		3000 Y(N) = SIN(N)	
4721	C		
4722		X(16) = VAR + VAR1 * SSPAN	
4723		Y(16) = SSPAN	
4724	C		
4725		DO 3010 N=1,16	
4726		XPNT = X(N)	
4727		YPNT = Y(N)	
4728		X(N) = (XPNT-QDM(32))*CDA + (YPNT-QDM(31))*SDA + QDM(32)	
4729		3010 Y(N) = -(XPNT-QDM(32))*SDA + (YPNT-QDM(31))*CDA + QDM(31)	
4730	C		
4731		XIP = X(1) - (X(1)-X(3)) * (Y(1)/(Y(1)-Y(3)))	
4732		XBP = X(2) - (X(2)-X(4)) * (Y(2)/(Y(2)-Y(4)))	
4733		XCP = X(3) + (X(1)-X(3)) * ((Y(16)-Y(3)) / (Y(1)-Y(3)))	
4734		XNP = X(4) + (X(2)-X(4)) * ((Y(16)-Y(4)) / (Y(2)-Y(4)))	
4735	C		
4736		AREA = (XBP - XIP + XNP - XCP) * Y(16) / 144.0	
4737		ROOTC = XCP - XIP	
4738		TAPER = (XNP - XCP) / (XBP - XIP)	
4739		SPAN = Y(16) / 8.0	
4740		AR = SPAN**2 / AREA	
4741		XDC = (X(16)-XCP) / (XNP-XCP)	
4742		TANEA = ATAN((X(16)-X(5)) / (Y(16)-Y(5))) * 57.2958	
4743		TANLE = ATAN((XCP-XIP) / Y(16)) * 57.2958	
4744	C		
4745		DWMT(J+20) = XDC	
4746		DWMT(J+1) = TANLE	
4747		DWMT(J+2) = TANEA	
4748		DWMT(J+3) = XIP	
4749		DWMT(J+4) = ROOTC	
4750		DWMT(J+5) = TAPER	
4751		DWMT(J+7) = AREA	
4752		DWMT(J+8) = SPAN	
4753		DWMT(J+6) = AR	
4754	C		
4755		DO 250 I=1,11	
4756		K = J + I	


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CARD NO      ****      CONTENTS      ****

4757      250 DWH(4) = Y(14)
4758      C
4759      I = 2*(I)
4760      DWH(1:302) = DWH(J:10)
4761      DWH(1:303) = DWH(J:3) + DWH(J:10)*TAN(DWH(J:1)*D(10)) +
4762      I DWH(J:20)*DWH(J:4)*D(1) - D(1) - DWH(J:5)*DWH(J:10)/Y(10)
4763      IF(I) = 1) 250,250,300
4764      C      DO FORWARD SHEEP
4765      260 I = 2
4766      80 TO 202
4767      C      VERTICAL STABILIZER
4768      300 S(81) = TAN(ODV(4)*D(10))
4769      S(82) = D(2)/ODV(2)*D(1) - ODV(3)/D(1) + ODV(3)
4770      S(83) = S(81) + S(82)*ODV(5)
4771      S(84) = S(81) + S(82)*(ODV(5) - D(1))
4772      S(85) = S(81) + S(82)*(ODV(5) - ODV(8))
4773      S(84) = S(81) + S(82)*(ODV(5) - D(23))
4774      S(86) = (ODV(2)*ODV(1))**.5*D(12)
4775      S(86) = D(2)*ODV(1)*D(17)/S(86)/D(1) + ODV(3)
4776      S(87) = S(86)*ODV(3)
4777      S(88) = D(2)/D(3)*S(86) + S(87) - S(86)*S(87)/(S(86) + S(87))
4778      C      HORIZONTAL TAIL DATA
4779      S(81) = TAN(ODH(4)*D(10))
4780      S(82) = D(4)/ODH(2)*D(1) - ODH(3)/D(1) + ODH(3)
4781      S(83) = S(81) + S(82)*ODH(5)
4782      S(84) = S(81) + S(82)*(ODH(5) - ODH(10))
4783      S(87) = (ODH(2)*ODH(1))**.5*D(12)
4784      S(85) = D(2)*ODH(1)*D(17)/S(87)/D(1) + ODH(3)
4785      S(86) = ODH(3)*S(85)
4786      S(88) = D(2)/D(3)*S(85) + S(86) - S(85)*S(86)/(S(85) + S(86))
4787      S(89) = ODH(8)
4788      S(101) = S(81) + S(82)*ODH(5) - D(23)
4789      IF(ODH(8)) 402,402,410
4790      402 IF(S(85) - S(86)) 404,404,406
4791      404 S(86) = ODH(8) - S(85)/D(4)
4792      80 TO 410
4793      406 S(89) = ODH(8) - S(88)/D(4) - (S(85) - S(88))/(S(85) - S(86))
4794      I S(87)/D(2)*S(83)
4795      410 DWH(1) = D(24)
4796      S(70) = ODV(8)
4797      IF(ODV(8)) 302,302,305
4798      302 IF(S(86) - S(87)) 303,303,304
4799      303 S(70) = ODV(8) - S(86)/D(4)
4800      80 TO 305
4801      304 S(70) = ODV(8) - S(88)/D(4) - (S(86) - S(88))/(S(86) - S(87))
4802      I S(88)*S(82)
4803      305 DWH(23) = D(1)
4804      DWH(25) = S(88)
4805      IF(S(86) - S(87)) 306,306,307
4806      306 DWH(24) = S(70) + S(86)/D(4)
4807      80 TO 308
4808      307 DWH(24) = S(70) + S(88)/D(4) + (S(86) - S(88))/(S(86) - S(87))
4809      I S(88)*S(83)
4810      308 DWH(27) = ODV(11) + S(88)
4811      DWH(28) = S(70) + S(88)*S(83) + S(87)
4812      DWH(29) = S(88)/D(12)
4813      DWH(30) = S(86)
4814      IF(ODV(7)) 310,310,309
4815      309 DWH(23) = D(2)
4816      310 IF(ODV(30)) 320,320,312
4817      C      VERTICAL IS ON MIND OR AFT OFFUCLAGE
4818      312 DWH(1) = ATAN(S(83)/D(10))
4819      DWH(2) = ATAN(S(85)/D(10))
4820      DWH(3) = S(70)
4821      DWH(4) = S(86)
4822      DWH(5) = ODV(3)
4823      DWH(6) = ODV(2)
4824      DWH(7) = ODV(1)
4825      DWH(8) = S(88)/D(12)
4826      DWH(9) = D(24)
4827      DWH(26) = ODV(11)

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CARD NO      ****      CONTENTS      ****

4000          IF(DDV(10)) 313,313,310
4001          C          COMPUTE CUTS
4002          313 S(71) = S(00)/D(10)
4003          DDV(10) = D(24)
4004          314 DDV(20) = DDV(10) * (DDV(00)*S(71)+D(10))
4005          DO 315 I=1,8
4006          DDV(I+10) = DDV(I+0) * S(71)
4007          315 CONTINUE
4008          GO TO 300
4009          316 DO 318 I=1,11
4010          IF(DDV(17)) 3161,3161,317
4011          3161 IF(DDV(I+10) - D(1)) 3163,3163,3165
4012          3163 DDV(I+0) = S(00)*DDV(I+10)
4013          GO TO 310
4014          3165 DDV(I+0) = DDV(I+10)
4015          GO TO 310
4016          317 DDV(I+0) = DDV(I+10)*COS(DDV(2)*D(10))
4017          318 CONTINUE
4018          GO TO 300
4019          C          VERTICAL IS ON FUSELAGE DETERMINE EFFECTIVE SURFACE
4020          320 S(71) = S(70) * S(00)/D(2)
4021          S(72) = Z(10)
4022          IF(S(71) - X(10)) 322,312,312
4023          C          DETERMINE WATER PLANE OF FUSELAGE AT STATION S(71)
4024          322 I = 1
4025          324 IF(X(I) - S(71)) 326,330,330
4026          326 I = I+1
4027          GO TO 324
4028          330 S(72) = Z(I-1) + (Z(I) - Z(I-1))*(S(71) - X(I-1))/
4029          * (X(I) - X(I-1))
4030          C          TEST ON HORIZONTAL TAIL
4031          IF(DD(0)) 333,333,339
4032          C          HORIZONTAL TAIL ON FUSELAGE
4033          333 IF(S(70) - S(00) - S(05)) 334,334,339
4034          334 IF(DDH(1)) - DDV(1)) 335,335,339
4035          335 S(72) = DDH(1)
4036          336 S(73) = DDV(1) - S(72)
4037          DDV(20) = S(72)
4038          DDV(0) = (S(00) + S(73))/D(12)
4039          DDV(4) = S(07) + (S(06) - S(07))*(S(00) + S(73))/S(00)
4040          DDV(1) = ATAN(S(03))/D(10)
4041          DDV(2) = ATAN(S(05))/D(10)
4042          DDV(3) = S(70) - S(73)*S(03)
4043          DDV(5) = S(07)/DDV(4)
4044          DDV(7) = (DDV(4) + S(07)/D(2)*(S(00) + S(73))/D(17)
4045          DDV(8) = DDV(8)**2/DDV(7)
4046          DDV(9) = S(73)
4047          IF(DDV(10)) 332,332,340
4048          332 DDV(10) = DDV(9)
4049          S(71) = S(00)/D(10)
4050          GO TO 314
4051          340 DO 349 I=1,11
4052          IF(DDV(17)) 341,341,347
4053          341 IF(DDV(I+10)-D(1)) 342,342,344
4054          342 DDV(I+0) = DDV(I+10) * S(00)*(DDV(1)-S(72))
4055          GO TO 349
4056          344 DDV(I+0) = DDV(I+10) * (DDV(1) - S(72))
4057          GO TO 349
4058          347 DDV(I+0) = DDV(I+10)*COS(DDV(2)*D(10)) + (DDV(1)-S(72))
4059          349 CONTINUE
4060          C          TEST FOR INPUT ERROR LAST CUT OUTBOARD OF TIP
4061          300 IF(DDV(20) .GT. DDV(0)*D(12)) DDV(20) = DDV(0)*D(12)
4062          DDV(12) = DDV(10)
4063          DDV(22) = ATAN(S(74))/D(10)
4064          IF(DDV(30)) 414,414,420
4065          C          HORIZONTAL IS ON FUSELAGE OR VERTICAL
4066          414 IF(DD(10)) 420,420,410
4067          410 DDH(1) = DDH(1) - S(72)
4068          420 DDH(2) = ATAN(S(03))/D(10)
4069          DDH(3) = ATAN(S(04))/D(10)
4070          DDH(10) = DDH(7)

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CARD NO	****	CONTENTS	****
4000		DWH(1) = GDH(7)	
4001		DWH(2) = GDH(8)	
4002		DWH(23) = ATAN(S(18)/D(18))	
4003		IF(GDH(30)) 421,421,440	
4004	C	GROSS DATA GIVEN	
4005		421 DWH(4) = S(80)	
4006		DWH(5) = S(85)	
4007		DWH(6) = GDH(3)	
4008		DWH(7) = GDH(2)	
4009		DWH(8) = GDH(1)	
4010		DWH(9) = S(87)/D(12)	
4011		IF(GDH(18)) 422,422,430	
4012	C	CALCULATE CUTS	
4013		422 S(100) = (S(87)/D(2) - GDH(7))/D(10)	
4014		423 DWH(21) = DWH(11) + (GDH(7)*S(100)*D(10))	
4015		DO 424 I=1,8	
4016		DWH(I+11) = DWH(I+10) + S(100)	
4017		424 CONTINUE	
4018		GO TO 500	
4019	C	CUTS ARE INPUT	
4020		430 DO 439 I=1,11	
4021		IF(GDH(17)) 431,431,437	
4022		431 IF(GDH(I+10) - D(11)) 433,433,435	
4023		433 DWH(I+10) = GDH(I+10)*S(87)/D(2) - GDH(7) + GDH(7)	
4024		GO TO 439	
4025		435 DWH(I+10) = GDH(I+10)	
4026		GO TO 439	
4027		437 DWH(I+10) = GDH(I+10)*COS(DWH(3)*D(16))	
4028		439 CONTINUE	
4029		GO TO 500	
4030	C	EXPOSED GEOMETRY GIVEN COMPUTE GROSS GEOMETRY	
4031		440 DWH(5) = (S(86) + (S(85) - S(86))*S(87)/D(2) + GDH(7)/S(87)*D(2))	
4032		DWH(4) = S(86) - GDH(7)*S(83)	
4033		DWH(6) = (S(86) + DWH(5))*S(87)/D(2) + GDH(7)/D(17)	
4034		DWH(8) = (S(87) + D(2)*GDH(7))/D(12)	
4035		DWH(7) = DWH(8)**2/DWH(8)	
4036		IF(GDH(18)) 442,442,450	
4037	C	CALCULATE CUTS	
4038		442 S(100) = S(87)/D(2)/D(10)	
4039		GO TO 423	
4040	C		
4041		450 DO 459 I=1,11	
4042		IF(GDH(17)) 451,451,457	
4043		451 IF(GDH(I+10) - D(11)) 453,453,455	
4044		453 DWH(I+10) = GDH(I+10) + S(87)/D(2) + GDH(7)	
4045		GO TO 459	
4046		455 DWH(I+10) = GDH(I+10) + GDH(7)	
4047		GO TO 459	
4048		457 DWH(I+10) = GDH(I+10)*COS(DWH(3)*D(16)) + GDH(7)	
4049		459 CONTINUE	
4050	C	TEST FOR INPUT ERROR LAST CUT OUTBOARD OF TIP	
4051		500 IF(DWH(21) GT DWH(9)*D(6)) DWH(21) = DWH(9)*D(6)	
4052	C	CALCULATE GROSS MAC DATA	
4053		DWH(27) = D(2)/D(3)*DWH(5)*D(11) + DWH(6) - DWH(6)/	
4054		I (D(1) + DWH(8))	
4055		(F(D(1) - DWH(8)) 502,502,504	
4056		502 DWH(26) = DWH(4) + DWH(5)/D(14)	
4057		GO TO 506	
4058		504 DWH(26) = DWH(4) + DWH(27)/D(14) + (DWH(5) - DWH(27))/	
4059		I (D(1) - DWH(8))*DWH(8)*D(6)/DWH(5)*S(83)	
4060	C	FOR SPINDLE USE EXPOSED MAC FOR BALANCE GD(14) = 2	
4061	C	FOR OTHER TYPES USE GROSS DATA GD(14) = 0.1	
4062		506 IF(D(14) - D(1)) 510,510,520	
4063		510 DWH(25) = DWH(27)	
4064		DWH(24) = DWH(26)	
4065		GO TO 530	
4066		520 IF(D(1) - DWH(8)) 522,522,524	
4067		522 DWH(24) = DWH(4) + DWH(5)/D(14)	
4068		DWH(25) = DWH(5)	
4069		GO TO 530	

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
5041		EQUIVALENCE (DWM(1),DV(32)),(DWT(1),DV(112))	
5042		1, (DD(1),DD(1)), (DDT(1),DD(9)), (DDH(1),DD(25))	
5043	C		
5044		EQUIVALENCE (YH(1),DWT(38)),(YBH(1),DWT(40)),	
5045		1 (DYM(1),DWT(43)),(CBH(1),DWT(425)),(UX(1),DWT(437)),	
5046		2 (UY(1),DWT(448)),(UZ(1),DWT(461))	
5047	C		
5048		EQUIVALENCE (RLM(1),S(16))	
5049	C		
5050		EQUIVALENCE (HMT(1),DWT(473)),(XBM(1),DWT(485)),	
5051		1 (HMT(1),DWT(497)),(XBM(1),DWT(509)),(HMT(1),DWT(521)),	
5052		2 (XBM(1),DWT(533)),(HMT(1),DWT(545)),(XBM(1),DWT(557)),	
5053		3 (YB(1),DWT(569)),(XB(1),DWT(581)),(YB(1),DWT(593)),	
5054		4 (YB(1),DWT(605)),(XB(1),DWT(617)),(XB(1),DWT(629)),	
5055		5 (YB(1),DWT(641)),(YB(1),DWT(653)),(XB(1),DWT(665)),	
5056		6 (XB(1),DWT(677)),(YB(1),DWT(689)),(YB(1),DWT(701)),	
5057		7 (YY(1),DWT(713)),(YY(1),DWT(725)),(YY(1),DWT(737)),	
5058		8 (YY(1),DWT(749))	
5059	C		
5060		EQUIVALENCE (YB(1),DWT(40)),(XB(1),DWT(413)),	
5061		1 (YB(1),DWT(425)),(XB(1),DWT(485))	
5062	C		
5063		EQUIVALENCE (DWM(1),DWT(872)),(DWM(1),DWT(884))	
5064		*, (DWM(1),DWT(896)),(DWM(1),DWT(908))	
5065		*, (DWM(1),DWT(920)),(DWM(1),DWT(932))	
5066	C		
5067		EQUIVALENCE (1,ND(10)),2,ND(102)),3,ND(103)),4,ND(104)),	
5068		1 (N,ND(106)),11,ND(107)),12,ND(108))	
5069	C		
5070	C	DEVELOP SECTION CUTS FOR DEAD WEIGHT DISTRIBUTION AND INERTIA	
5071	C	ROOT, 11 SYNTHESIS CUTS, TIP	
5072		YM(1) = D(24)	
5073		YM(13) = DWM(45)	
5074		DO 120 I=2,12	
5075		YM(I) = DWT(1+859)	
5076		120 CONTINUE	
5077	C		
5078		DO 140 I=1,12	
5079		YBH(I) = (YM(I) + YM(I+1))/D(2)	
5080		DYM(I) = YM(I+1) - YM(I)	
5081		CBH(I) = DWM(48) - (DWM(48) - DWM(49))*YBH(I)/DWM(45)	
5082		RLM(I) = DWM(47) + YBH(I)*TAN(DWM(46)*D(16))	
5083		S(1) = DYM(I)**2	
5084		S(2) = (CBH(I)*D(8)/D(10))**2	
5085		S(3) = (CBH(I)*CBH(I+1)*D(8)/D(10))**2	
5086		UM(I) = (S(1) + S(3))/D(12)	
5087		UY(I) = (S(2) + S(3))/D(12)	
5088		UZ(I) = (S(1) + S(2))/D(12)	
5089		140 CONTINUE	
5090	C		
5091	C		
5092	C	DISTRIBUTE WIND ACCORDING TO PARABOLIC DISTRIBUTION	
5093		S(1) = DWT(48)*D(1)	
5094		S(2) = DWT(181)*DWT(201)	
5095		S(5) = S(1)/DWM(45)*D(20)	
5096		HMT(I) = S(1) - S(5)*(DWM(45) - YH(2))*D(20)	
5097		S(3) = HMT(I)*RLM(I)	
5098		S(4) = HMT(I)*CBH(I)	
5099	C		
5100		DO 150 I=2,12	
5101		HMT(I) = S(5)*(DWM(45) - YH(I))*D(20) +	
5102		1 S(5)*(DWM(45) - YH(I+1))*D(20)	
5103		S(3) = S(3) + HMT(I)*RLM(I)	
5104		S(4) = S(4) + HMT(I)*CBH(I)	
5105		150 CONTINUE	
5106	C		
5107		S(6) = (S(2) - S(3))/S(4)	
5108		DO 154 I=1,12	
5109		HBM(I) = RLM(I) + S(6)*CBH(I)	
5110		154 CONTINUE	
5111	C		

CARD NO	CONTENTS
0112	C
0113	C DISTRIBUTE WISC. WIND CONTENTS ACCORDING TO PARABOLIC DIST.
0114	C $S(1+120) = \text{FIXED HEIGHT}$
0115	C $S(1+140) = X-C0$
0116	C
0117	$S(1) = D(24)$
0118	$S(2) = D(24)$
0119	C
0120	DO 100 I=3,10
0121	$S(1) = S(1) + DWT(1) * 100$
0122	$S(2) = S(2) + DWT(1) * 100 + DWT(1) * 200$
0123	100 CONTINUE
0124	C
0125	$S(5) = S(1) / DWH(45) * D(20)$
0126	$S(12) = S(1) - S(5) * DWH(45) - YH(2) * D(20)$
0127	$S(3) = S(12) * XLM(1)$
0128	$S(4) = S(12) * CBH(1)$
0129	C
0130	DO 104 I=2,12
0131	$S(1+120) = S(5) * DWH(45) - YH(1) * D(20) -$
0132	$I S(5) * DWH(45) - YH(1) * D(20)$
0133	$S(3) = S(3) + S(1+120) * XLM(1)$
0134	$S(4) = S(4) + S(1+120) * CBH(1)$
0135	104 CONTINUE
0136	C
0137	$S(6) = (S(2) - S(3)) / S(4)$
0138	C
0139	DO 100 J=1,12
0140	$S(1+140) = XLM(1) + S(6) * CBH(1)$
0141	100 CONTINUE
0142	C
0143	C
0144	C TEST FOR LANDING GEAR ON WING
0145	IF(DWT(102)) 100,100,170
0146	C SCAN WING CUTS FOR LOCATION
0147	170 I = 1
0148	172 IF(YBH(1) - GD(40)) 174,170,170
0149	174 I = I + 1
0150	IF(I2 - I) 176,172,172
0151	176 I = I - 1
0152	170 J = I - 1
0153	IF(J) 100,100,102
0154	100 J = 1
0155	$S(J+20) = DWT(102)$
0156	GO TO 103
0157	102 $S(1+20) = DWT(102) * (GD(40) - YBH(J)) / (YBH(1) - YBH(J))$
0158	$S(J+20) = DWT(102) - S(1+20)$
0159	103 $S(14) = D(24)$
0160	$S(15) = D(24)$
0161	C
0162	DO 104 L=J,1
0163	$S(14) = S(14) + S(L+20) * XLM(L)$
0164	$S(15) = S(15) + S(L+20) * CBH(L)$
0165	104 CONTINUE
0166	C
0167	$S(16) = (DWT(102) * DWT(202) - S(14)) / S(15)$
0168	C
0169	DO 100 L=J,1
0170	$S(L+40) = XLM(L) + CBH(L) * S(16)$
0171	IF(S(L+120) + S(L+20)) 105,100,105
0172	105 $S(L+140) = (S(L+120) * S(L+140) + S(L+20) * S(L+40)) /$
0173	$I (S(L+120) + S(L+20))$
0174	$S(L+120) = S(L+120) + S(L+20)$
0175	100 CONTINUE
0176	C
0177	100 CONTINUE
0178	C
0179	C
0180	C DISTRIBUTE WIND PAYLOAD
0181	C II = GROSS HEIGHT COUNTER JJ = PAYLOAD COUNTER
0182	II = 1

01/08/74	INPUT LISTING	AUTOFLOW CHART SET - SHEEP	DATA MANAGEMENT MODULE
CARD NO	****	CONTENTS	****
0103		S(1) = GDMT(122)	
0104		S(2) = GDMT(132)	
0105		S(3) = GDMT(142)	
0106		S(4) = GDMT(124)	
0107		S(5) = GDMT(134)	
0108		S(6) = GDMT(144)	
0109		S(7) = GDMT(125)	
0109		S(8) = GDMT(135)	
0109		S(9) = GDMT(145)	
0102		100 S(11) = D(1)/D(2)	
0103		K = 1	
0104		IF (GDMT(104)) 104,104,200	
0105		104 S(11) = D(1)	
0106	C		
0107	C	CLEAR SCRATCH REGION	
0108	C		
0109		200 DO 205 I=1,20	
0200		S(1+20) = D(24)	
0201		S(1+40) = D(24)	
0202		205 CONTINUE	
0203	C		
0204		IF (GDMT(82)*S(11)) 300,300,220	
0205	C	DISTRIBUTE WING PAY LOAD - TEST ON INBOARD OR OUTBOARD PAYLOAD	
0206		220 S(12) = GDMT(82)*S(11)*S(11)	
0207		S(13) = GDMT(K+102)	
0208		S(17) = GDMT(92)	
0209		IF (S(11) - D(1)) 222,251,251	
0210		222 S(19) = (GDMT(104) - GDMT(103))*TAN(DM(46)*D(16))/D(2)	
0211		S(17) = GDMT(92) - S(19)	
0212		S(18) = GDMT(92) + S(19)	
0213	C	SCAN WING CUTS FOR LOCATION	
0214		251 I = 1	
0215		252 IF (YBH(I) - S(13)) 254,250,250	
0216		254 I = I + 1	
0217		IF (I2 - 1) 256,252,252	
0218		256 I = I - 1	
0219		250 J = I - 1	
0220		IF (J) 260,260,262	
0221		260 J = 1	
0222		S(J+60) = S(12)	
0223		GO TO 270	
0224		262 S(I+60) = S(12)*(S(13) - YBH(J))/(YBH(I) - YBH(J))	
0225		S(J+60) = S(12) - S(I+60)	
0226		270 S(14) = D(24)	
0227		S(15) = D(24)	
0228	C		
0229		DO 272 L=J,1	
0230		S(14) = S(14) + S(L+60)*XLM(L)	
0231		S(15) = S(15) + S(L+60)*CBH(L)	
0232		272 CONTINUE	
0233	C		
0234		S(18) = (S(12)*S(K+10) - S(14))/S(19)	
0235	C		
0236		DO 276 L = J,1	
0237		S(L+60) = XLM(L) + CBH(L)*S(18)	
0238		IF (S(L+20) + S(L+60)) 274,276,274	
0239		274 S(19) = (S(L+20)*S(L+40) + S(L+60)*S(L+60))/(S(L+20) + S(L+60))	
0240		S(L+20) = S(L+20) + S(L+60)	
0241		S(L+40) = S(19)	
0242		276 CONTINUE	
0243	C		
0244	C		
0245	C		
0246		IF (K - 1) 200,200,300	
0247		200 IF (S(11) - D(1)) 202,300,300	
0248		202 K = K + 1	
0249		GO TO 200	
0250	C	DISTRIBUTE WING FUEL K = 1 INBD K = 2 OUTBD	
0251		300 K = 1	
0252		302 JJ = 1 + K*3	
0253		IF (GDMT(K+62)*S(JJ)) 400,400,320	

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DATA MANAGEMENT MODULE

CARD NO	CONTENTS
0254	300 S(11) = CDW(K+03)*S(11)
0255	I = 24
0256	S(12) = CDW(11+03)
0257	S(13) = CDW(11+04)
0258	IF(YM(13) - S(12)) 310,314,314
0259	310 WRITE(6,312)
0260	312 FORMAT(1H0,20X,3PERROR 1H0 FUEL RIB IS OUT OF TYP)
0261	I = 12
0262	J = 13
0263	GO TO 340
0264	314 I = 1
0265	302 IF(YM(11) - S(12)) 324,330,320
0266	324 I = I + 1
0267	GO TO 302
0268	320 IF(YM(11)-1) .GT. S(12)) I = I - 1
0269	330 J = 1
0270	332 IF(YM(11) - S(13)) 334,340,336
0271	334 J = J + 1
0272	IF(13 - J) 330,332,332
0273	336 IF(S(13) - YM(11)) 330,340,340
0274	330 J = J - 1
0275	340 H = J - 1
0276	S(14) = D(24)
0277	DO 342 L=1,H
0278	C DISTRIBUTE FUEL ACCORDING TO WING VOLUME
0279	S(L+00) = DYM(L)*CBM(L)*(D(11) - D(1)) - CDW(3)*CDW(13)*
0280	I YM(L)/DYM(45))
0281	S(14) = S(14) + S(L+00)
0282	342 CONTINUE
0283	C
0284	DO 344 L=1,H
0285	S(L+00) = S(11)*S(L+00)/S(14)
0286	344 CONTINUE
0287	C
0288	S(15) = D(24)
0289	S(16) = D(24)
0290	C
0291	DO 350 L=1,H
0292	S(15) = S(15) + S(L+00)*LM(L)
0293	S(16) = S(16) + S(L+00)*CBM(L)
0294	350 CONTINUE
0295	C
0296	S(17) = (S(11)*CDW(K+03) - S(15))/S(16)
0297	DO 354 L=1,H
0298	S(L+00) = LM(L) + CBM(L)*S(17)
0299	IF(S(L+20) + S(L+00)) 352,354,352
0300	352 S(18) = (S(L+20)*S(L+40) + S(L+00)*S(L+00))/(S(L+20) + S(L+00))
0301	S(L+40) = S(18)
0302	S(L+20) = S(L+20) + S(L+00)
0303	354 CONTINUE
0304	400 IF(K - 1) 402,402,450
0305	402 K = K + 1
0306	GO TO 302
0307	C
0308	C
0309	C SETUP DEAD HEIGHT DISTRIBUTION ARRAYS
0310	450 DO 701400,470,480,11
0311	C
0312	C MAXIMUM DESIGN HEIGHT ARRAY
0313	400 I = 2
0314	C
0315	DO 405 I=1,12
0316	MDT(1) = MDT(1) + S(1+20) + S(1+20)
0317	IF(MDT(1)) 402,405,402
0318	402 MDH(1) = (MDT(1)*MDH(1) + S(1+20)*S(1+40) + S(1+20)*S(1+40))/
0319	I MDT(1)
0320	405 CONTINUE
0321	C
0322	GO TO 100
0323	C
0324	C BASIC FLIGHT DESIGN HEIGHT ARRAY

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CARD NO	CONTENTS		
9325	470 I1 = 3		
9326	C		
9327	DO 475 I=1,12		
9328	WM2(I) = WM(I) + S(I+120) + S(I+20)		
9329	IF(WM2(I)) 472,475,472		
9330	472 XBM2(I) = (WM(I)*XBM(I) + S(I+120)*S(I+140) + S(I+20)*S(I+40))/		
9331	I WM2(I)		
9332	475 CONTINUE		
9333	C		
9334	GO TO 190		
9335	C		
9336	C LANDING DESIGN HEIGHT ARRAY		
9337	C		
9338	480 DO 485 I=1,12		
9339	WM3(I) = WM(I) + S(I+120) + S(I+20)		
9340	IF(WM3(I)) 482,485,482		
9341	482 XBM3(I) = (WM(I)*XBM(I) + S(I+120)*S(I+140) + S(I+20)*S(I+40))/		
9342	I WM3(I)		
9343	485 CONTINUE		
9344	C		
9345	C MINIMUM FLYING HEIGHT ARRAY		
9346	C		
9347	DO 495 I=1,12		
9348	DM(I) = WM(I) + S(I+120)		
9349	IF(DM(I)) 492,495,492		
9350	492 XDM(I) = (WM(I)*XBM(I) + S(I+120)*S(I+140))/DM(I)		
9351	495 CONTINUE		
9352	C		
9353	C		
9354	C TRANSFER DATA TO WORKING REGION ROTATE WING IF SWING WING		
9355	DO 650 I=1,12		
9356	IF(GO1(I)) 602,602,610		
9357	C FIXED WING OR SEGMENT INBOARD OF PIVOT		
9358	602 XB1(I) = XBM(I)		
9359	XB2(I) = XBM(I)		
9360	YB1(I) = YBM(I)		
9361	YB2(I) = YBM(I)		
9362	XB2(I) = XBM2(I)		
9363	XB2(I) = XBM2(I)		
9364	YB2(I) = YBM(I)		
9365	YB2(I) = YBM(I)		
9366	XB3(I) = XBM3(I)		
9367	XB2(I) = XBM3(I)		
9368	YB3(I) = YBM(I)		
9369	YB2(I) = YBM(I)		
9370	YY2(I) = WM2(I)*UY(I)		
9371	YY2(I) = WM2(I)*UY(I)		
9372	YY2(I) = WM(I)*UY(I)		
9373	YY2(I) = WM(I)*UY(I)		
9374	XDM(I) = XDM(I)		
9375	XDM2(I) = XDM(I)		
9376	YDM(I) = YDM(I)		
9377	YDM2(I) = YDM(I)		
9378	GO TO 650		
9379	C		
9380	C VARIABLE SHEEP WING		
9381	610 IF(YBM(I) - ODM(3)) 602,602,612		
9382	C SEGMENT OUTBOARD OF PIVOT		
9383	612 S(1) = ATAN(XBM(I) - ODM(32))/(YBM(I) - ODM(31))		
9384	S(2) = ((XBM(I) - ODM(32))**2 + (YBM(I) - ODM(31))**2)**.5		
9385	S(3) = ODM(33) - ODM(4)		
9386	S(4) = ODM(34) - ODM(4)		
9387	XB1(I) = ODM(32) + S(2)*SIN(S(1) + S(3)*D(18))		
9388	YB1(I) = ODM(31) + S(2)*COS(S(1) + S(3)*D(18))		
9389	XB2(I) = ODM(32) + S(2)*SIN(S(1) + S(4)*D(18))		
9390	YB2(I) = ODM(31) + S(2)*COS(S(1) + S(4)*D(18))		
9391	S(1) = ATAN(XBM2(I) - ODM(32))/(YBM(I) - ODM(31))		
9392	S(2) = ((XBM2(I) - ODM(32))**2 + (YBM(I) - ODM(31))**2)**.5		
9393	XB2(I) = ODM(32) + S(2)*SIN(S(1) + S(3)*D(18))		
9394	YB2(I) = ODM(31) + S(2)*COS(S(1) + S(3)*D(18))		
9395	XB2(I) = ODM(32) + S(2)*SIN(S(1) + S(4)*D(18))		

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CARD NO	****	CONTENTS	****
9386		YB22(1) = QDM(31) + S(2)*COS(S(1)) + S(4)*D(16)	
9387		S(1) = ATAN((XBM(1) - QDM(32))/(YBM(1) - QDM(31)))	
9388		S(2) = ((XBM(1) - QDM(32))**2 + (YBM(1) - QDM(31))**2)**.5	
9389		XB13(1) = QDM(32) + S(2)*SIN(S(1)) + S(3)*D(16)	
9400		YB13(1) = QDM(31) + S(2)*COS(S(1)) + S(3)*D(16)	
9401		XB23(1) = QDM(32) + S(2)*SIN(S(1)) + S(4)*D(16)	
9402		YB23(1) = QDM(31) + S(2)*COS(S(1)) + S(4)*D(16)	
9403		S(1) = ATAN((XBM(1) - QDM(32))/(YBM(1) - QDM(31)))	
9404		S(2) = ((XBM(1) - QDM(32))**2 + (YBM(1) - QDM(31))**2)**.5	
9405		XBM(1) = QDM(32) + S(2)*SIN(S(1)) + S(3)*D(16)	
9406		YBM(1) = QDM(31) + S(2)*COS(S(1)) + S(3)*D(16)	
9407		XBM(2) = QDM(32) + S(2)*SIN(S(1)) + S(4)*D(16)	
9408		YBM(2) = QDM(31) + S(2)*COS(S(1)) + S(4)*D(16)	
9409		YY12(1) = MT2(1)*(UY(1)*COS(S(3)*D(16))**2 +	
9410		1 UX(1)*SIN(S(3)*D(16))**2)	
9411		YY22(1) = MT2(1)*(UY(1)*COS(S(4)*D(16))**2 +	
9412		1 UX(1)*SIN(S(4)*D(16))**2)	
9413		YY21(1) = MT1(1)*(UY(1)*COS(S(4)*D(16))**2 +	
9414		1 UX(1)*SIN(S(4)*D(16))**2)	
9415		YY23(1) = MT3(1)*(UY(1)*COS(S(4)*D(16))**2 +	
9416		1 UX(1)*SIN(S(4)*D(16))**2)	
9417		860 CONTINUE	
9418	C		
9419	C	NOTE YB10 AND YBM, AND XB10 AND XBM ARE COMMON - SEE EQUIVAL	
9420	C	TRANSFER WING HEIGHT DATA - ROTATE IF SHING WING	
9421		DO 750 1=1,12	
9422		IF (QD1(2)) 710,710,720	
9423	C		
9424	C	FIXED WING	
9425		710 XB20(1) = XB10(1)	
9426		YB20(1) = YB10(1)	
9427		GO TO 750	
9428	C		
9429	C	SHING WING	
9430		720 IF (YBM(1) - QDM(31)) 710,710,730	
9431	C	HEIGHT OUTBOARD OF PIVOT	
9432		730 S(1) = ATAN((XBM(1) - QDM(32))/(YBM(1) - QDM(31)))	
9433		S(2) = ((XBM(1) - QDM(32))**2 + (YBM(1) - QDM(31))**2)**.5	
9434		S(3) = QDM(33) - QDM(4)	
9435		S(4) = QDM(34) - QDM(4)	
9436		XB10(1) = QDM(32) + S(2)*SIN(S(1)) + S(3)*D(16)	
9437		YB10(1) = QDM(31) + S(2)*COS(S(1)) + S(3)*D(16)	
9438		XB20(1) = QDM(32) + S(2)*SIN(S(1)) + S(4)*D(16)	
9439		YB20(1) = QDM(31) + S(2)*COS(S(1)) + S(4)*D(16)	
9440		750 CONTINUE	
9441	C		
9442		RETURN	
9443		END	